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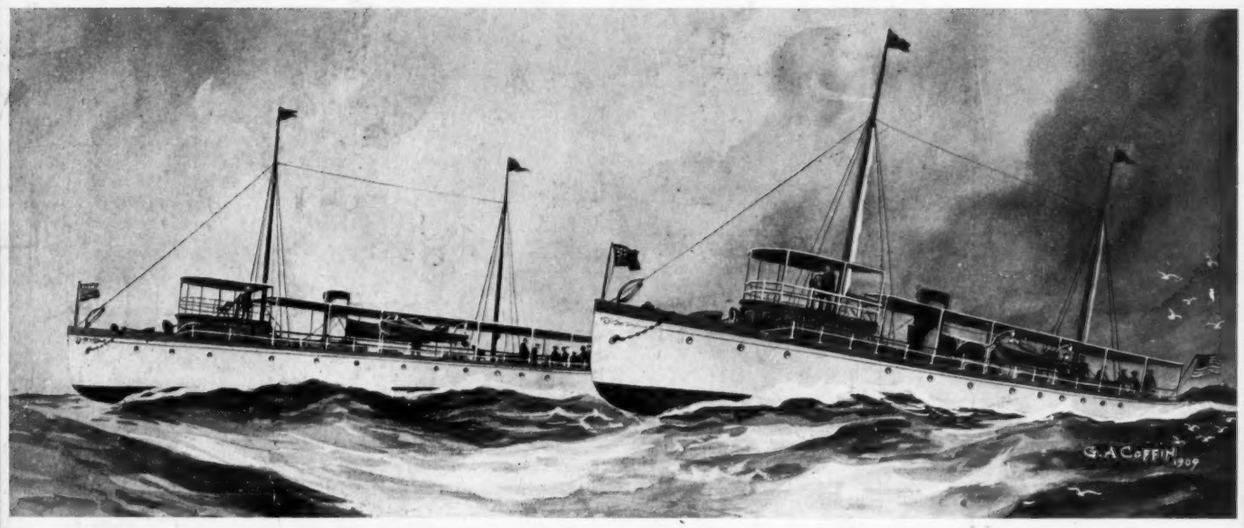

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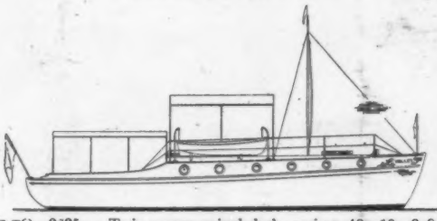
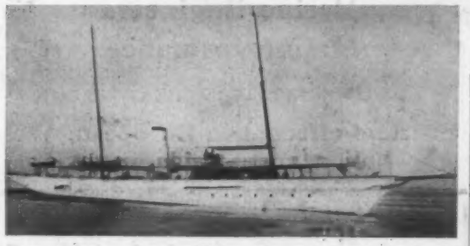


NO. 2725.—Twin screw raised deck cruiser, 40 x 10 x 2.8 ft. Stateroom, saloon, etc. Two 12 H. P. motors; speed, 10 miles. Electric lights. Full inventory. Price very attractive. Numerous others from 30 to 80 ft. H. J. Gielow, 52 Broadway, New York.



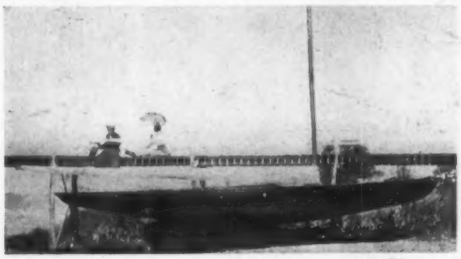
NO. 1935—SACRIFICE.—173 ft. steel steam yacht. Speed up to 17 knots. Five staterooms, three baths, large main and dining saloons. Exceptional deck room. Owner has larger steam yacht. Details, plans, etc. from H. J. Gielow, 52 Broadway, N. Y.

NO. 1983.—Bargain. Very desirable trunk cabin cruiser, 38 x 9 x 3 ft. Built 1907 by well-known firm in best manner. 15 H. P., 3-cylinder, 4-cycle 20th Century motor. Finished in selected mahogany throughout. Excellent inventory. Details from H. J. Gielow, 52 Broadway, New York.

NO. 1457.—Auxiliary yawl, 35 x 12 x 3.9 ft. draft; keel and centerboard. Full headroom. Sails new last July. 10 H. P. 2-cylinder motor. Very desirable cruiser. Price very low. Details from H. J. Gielow, 52 Broadway, New York.

NO. 1663.—Twin screw motor yacht, 65 x 13 x 3.4 ft. Handsome, roomy, splendid boat of type. Two 18 H. P. Standard motors; speed up to 11 knots. Fully furnished with the best. Must be seen to be appreciated. Bargain for quick sale. H. J. Gielow, 52 Broadway, New York.

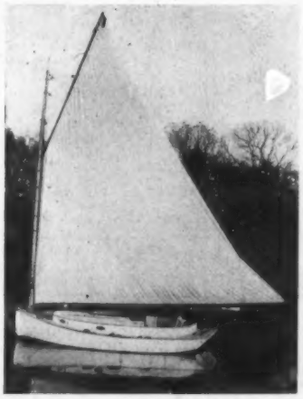
NO. 2267.—Bargain. Raised deck cruiser, 34 x 8.6 x 2.8 ft. Built Fall 1907 in best manner. Copper fastened. Comfortable accommodations for two; Sands' toilet. 15 H. P. motor (develops 19 H. P.). H. J. Gielow, 52 Broadway, New York.



NO. 2188.—Bargain. Fast centerboard knockabout, 28 x 17 x 7.6 x 3 ft. draft. One of the Indian Harbor Yacht Club One-Design Class, built 1904. Outside lead. Copper fastened. Sails new 1909, also rigging and gaff. In best of condition. Centerboard entirely in keel. Apply to H. J. Gielow, 52 Broadway, New York.

NO. 2732.—Centerboard auxiliary sloop, 31 ft. over all, 27.6 ft. waterline, 9.6 ft. beam, 2.7 ft. draft. Two berths, toilet, etc. 7 H. P. Palmer motor; speed, 6 to 7 miles. Very heavily and strongly constructed boat in very good shape. Bargain, as owner is building large power boat from my designs. H. J. Gielow, 52 Broadway, New York.

FOR SALE OR TRADE—Modern, fully equipped 1909 Matthews design, handsome cruising yacht, semi-trunk cabin, 35 x 8. Address Box 456, care "Yachting."



NO. 2389.—Crosby auxiliary cat boat, 26 x 11 x 2.6 ft. Built 1904. Probably most desirable of her type available. Sails new last June, also all of her gear, which is of the best. 7½ H. P. motor new last June; speed, 6 to 7 miles. Copper tanks. Unusual equipment. Details from H. J. Gielow, 52 Broadway, New York.

NO. 3135—FOR SALE.—Handsome keel yawl, 46 x 30.11 x 12.3 x 6.5 ft. draught; designed by Cary Smith, built best possible manner, 6 tons outside lead. Winner of many prizes in P class and off-shore races, now rates Q class under present rules. Exceptionally comfortable cruiser having large cabin, enclosed toilet, roomy galley, inventory complete all departments, power tender, sails complete, good condition, three balloon jibs. This is an opportunity to purchase an extraordinary boat for racing and comfortable cruising at reasonable price and all in best condition. Apply William P. Kiggins, 45 Broadway, New York.

FOR SALE.—40 ft. over all cruising launch, 9 ft. 6 ins. beam, copper fastened, salt water fittings, 22 H. P. 3 cylinder motor, reversing clutch, sleeping accommodations six, toilet room with water closet and lavatory. Speed, 9½ miles per hour, 140-gallon gasolene tank, electric lighting plant, galley, refrigerator, sink with pump, china closet, complete set of sailing lights, anchor and line, awning, curtains, ships bell clock, ships bell, power whistle outfit, life preservers, carpets, etc. Cost as equipped about $4,500. Has not been used to exceed 700 miles. Must sell at once. For particulars address R. F. Woodard, St. James Rectory, 20 Grant Street, Rochester, N. Y.

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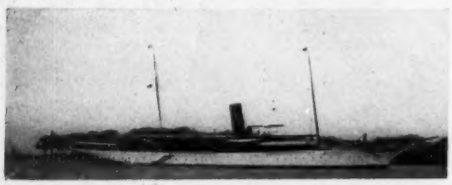
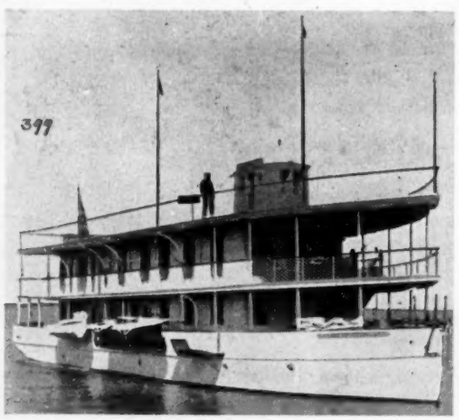


DIXIE II., DESIGNED BY US. 39.3 x 5.5 FT DOING 38 MILES AN HOUR. WINNER OF HARMSWORTH TROPHY. HAS NEVER BEEN BEATEN BY A BOAT IN HER CLASS.

FOR SALE OR CHARTER

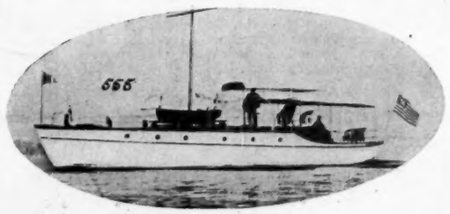
NO. 7296—FOR SALE.—Bargain, this able cruising launch, 39 x 36 x 8.6 x 3 ft. 25 H. P. motor; speed, 12 miles. Complete electric light plant; large cockpit; can sleep four to six; has a toilet room and galley; finished in mahogany.

NO. 3105—FOR SALE. — One of the fastest and ablest of the Q boats, 38.10 x 27.6 x 7.9 x 6.1; best possible construction; two suits sails; 6000 lbs. lead ballast; can sleep four; has galley and toilet room. Fully found. Owner anxious to sell.

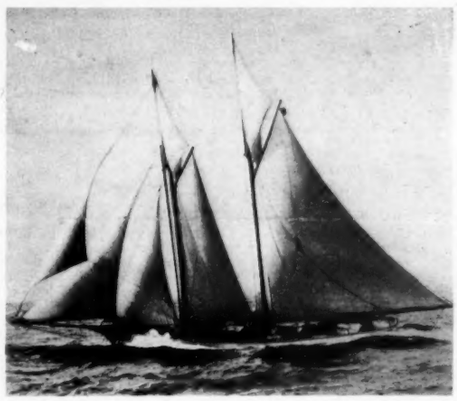


OWNER anxious to sell or charter houseboat now in Florida, 91 x 23.6 x 3 ft.; twin screw motors 30 H. P. each; has four staterooms, bath, sitting room and dining room for owner.

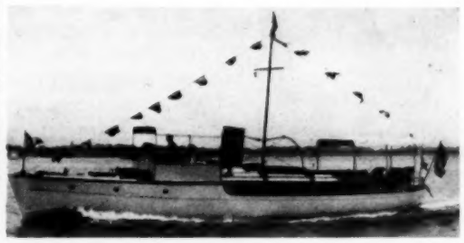
FOR SALE OR CHARTER



RAISED deck cruiser at bargain, built 1908, 55 x 12 x 3.6, 25 H. P. motor. Large saloon, owner's room double, well finished and furnished; will sleep six. Now in commission.



NO. 1039—FOR SALE.—Steel flush deck auxiliary schooner, 98 x 80 x 21 x 11 ft. Best condition. Completely overhauled this spring; having new white pine deck, running and standing rigging; 60 H. P. Remington oil motor installed 1909 under Messrs. Cary Smith & Ferris's supervision, safest possible installation. Craig bronze feathering propeller. Speed over 9 miles an hour. Five staterooms, bathroom, large saloon. Unusual opportunity. Owner would consider any reasonable offers. For full particulars apply to your own broker or Tams, Lemoine & Crane, 52 Pine Street.

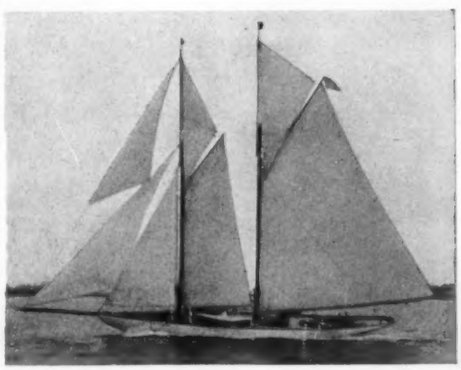


NO. 7422.—This unusually able cruiser for sale, 51 x 10 x 3 ft., built 1907; 30 H. P. motor; speed, 12 miles. Electric light. Large double stateroom sleeping two. Saloon sleeps four. Large galley and toilet, bridge and cockpit.

FOR SALE OR CHARTER

NO. 7708—FOR SALE.—This ideal runabout 32.6 x 4.6; speed, 19 miles; built by Gas Engine and Power Co. Six-cylinder Speedway motor. Can seat six or seven people. Has windshield and awnings arranged to enclose cockpit.- Owner anxious to sell.

NO. 3564. Bargain, sloop, good designer and builder. Best of construction, heavily built. Auxiliary could be installed 62 x 42 x 15.6 x 6.8. 9500 lbs. lead on keel. Large cockpit. Two large staterooms and saloon Good condition.



NO. 4543—FOR SALE.—This fast, handsome auxiliary schooner, 89 x 62 x 18.3 x 8.5. Built 1902. 25 H. P. motor recently installed. 25 tons lead ballast. Ratsey sails. Three staterooms, one double and large saloon. Best possible condition. Carries three boats including launch. Fully found. Sell at low figure.

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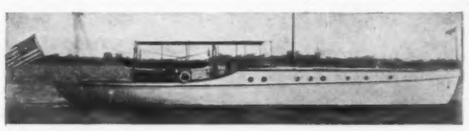
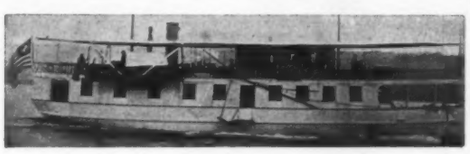
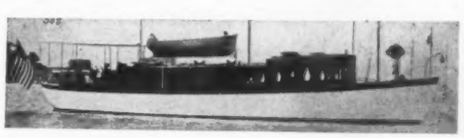
NO. 459.—Twin screw gasoline motor yacht, 91 x 82 x 15 x 5 ft. draught, launched 1907; equipped with two 50 H. P. Standards; two double, two single staterooms; one bath room, two toilet rooms; sleeps eight comfortably.



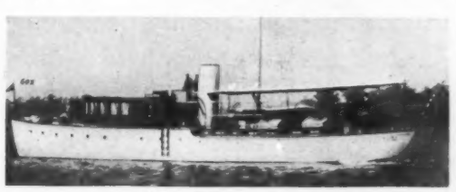
NO. 401.—Raised deck twin screw power launch, 64 x 58 x 12 x 3.6 ft.; launched 1907. One double stateroom, four berths in saloon, galley, toilet room, etc. Has two 20 H. P. Twentieth Century engines. Speed, 12 miles. Condition perfect; completely found; excellent seaboat.



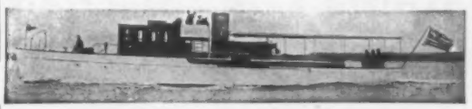
NO. 367.—Desirable twin screw gasoline power houseboat, 85 ft. over all; has liberal accommodations and fitted out in best possible taste. Supplied with all conveniences.



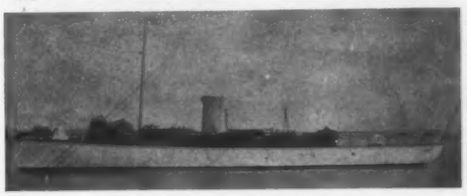
NO. 548.—Desirable gasoline launch, 50 x 49 x 11 x 3 ft. draught, beautifully finished and fitted. Excellent proposition for cruising or day service. 25 H. P. Murray & Tregurtha engine. Saloon forward, four berths. Engine room and crew's quarters aft. Roomy flush deck aft. Price attractive.



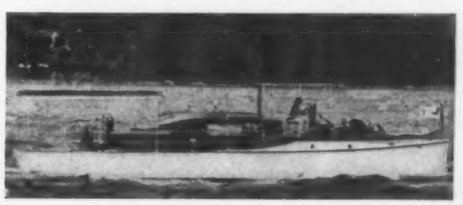
NO. 603.—Twin screw gasoline cruising yacht, 83 x 76 x 14.3 x 4 ft. draught; launched 1909; beautifully finished, fitted and furnished; two double saterooms, saloon, bath and other conveniences; two 60 H. P. Standard engines.



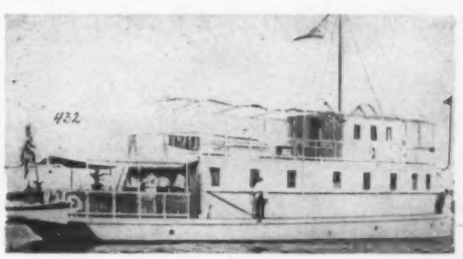
NO. 464.—Cruising motor yacht, Lawley design and build, 81 x 73 x 13 x 4 ft. draught; launched 1907; speed, 15 miles; two double, two single staterooms; two berths in saloon; sleeps nine; equipped with 100 H. P. Standard, self-starting. Price attractive.



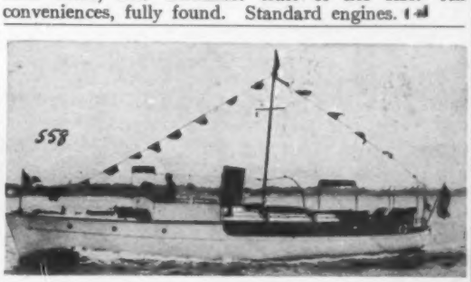
NO. 460.—Gasoline cruising launch, 71 x 65 x 10 x 4 ft. draught. Built 1906 by Lawley. Equipped with 100 H. P. Standard engine; speed, 14 knots. Accommodations consist of double stateroom and large toilet room aft, forward is dining saloon, toilet room, galley, etc. Electric lights, etc.; completely found. Price attractive.



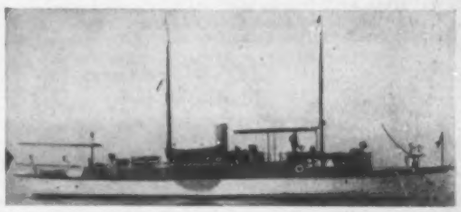
NO. 605.—Raised deck cruising launch, 50 x 47 x 10.6 x 3 ft. draught; launched 1909. Price attractive.



NO. 432.—Twin screw gasoline power houseboat, 75 x 20 x 30 ins. draught. Six staterooms, saloons bath room, etc. Roomiest craft of her size. All conveniences, fully found. Standard engines.



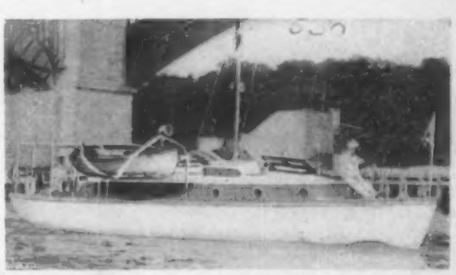
NO. 558.—Exceedingly attractive raised deck cruiser; 52 ft. over all; 10 ft. beam; 3 ft. draught; one stateroom; four berths in saloon; all conveniences; 30 H. P. engine; speed, 12 miles normal.



NO. 372.—Attractive 85-ft. cruising power yacht, beautifully finished, fitted and furnished; one single, two double staterooms, large saloon; speed, 12 miles. Excellent seaboat. Price attractive.

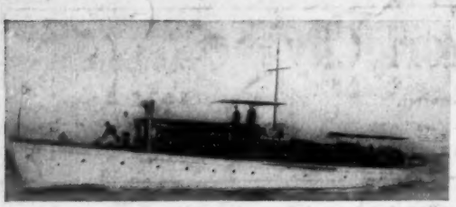
NO. 359.—Twin screw gasoline yacht, 65 x 56 x 13 x 3 ft. draught, launched 1906. Sleeps six comfortably. Beautifully finished and furnished. Two 18 H. P. Standard engines. Speed, 13 miles. Price attractive.

NO. 96(*b*).—Desirable cruising power houseboat, 61 x 54 x 16.2 x 3 ft. draught. Recent design and build; one double, two single staterooms; saloon with two berths; sleeps eight; 25 H. P. Standard engine. Price attractive.



NO. 530.—Hunting cabin cruising launch, 49 x 47 x 9 x 3 ft. draught, launched 1906; sleeps four; equipped with 60 H. P. motor.

NO. 609.—Cruising launch, 40 x 35 x 8 x 2.9 ft, launched 1909. Price attractive.



NO. 5580.—92 ft. Sleeps eight; bath; electric lights; two 50 H. P. Standards; speed actually 13 miles. Stanley M. Seaman, 220 Broadway, New York.

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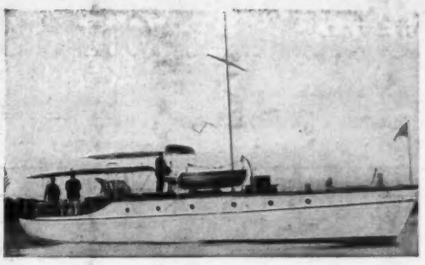
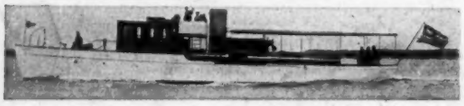


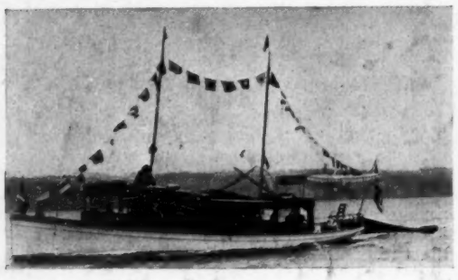
NO. 5977.—55 ft. latest type cruiser. Large stateroom and cabin, 25 H. P. Standard. Fully equipped. Want immediate sale. Stanley M. Seaman, 220 Broadway, New York.



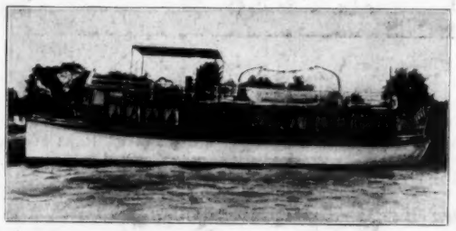
NO. 5967.—81 ft. Very commodious accommodations. Two staterooms; two saloons; bath; electric lights; 100 H. P. Standard; speed, 13 miles. Stanley M. Seaman, 220 Broadway, New York.

NO. 5963.—54 ft. (photo sister boat). Ideal day cruiser with sleeping room for four. 25 H. P. Standard; speed. 11 miles. Perfect condition throughout. Stanley M. Seaman, 220 Broadway, New York.

NO. 5896.—54 ft., new this year. Most elaborate and distinctive craft of character. Teak inside and out. Double State room; Saloon with tile fire place, Bath room, Electric light throughout. Stanley M. Seaman, 220 Broadway, New York.

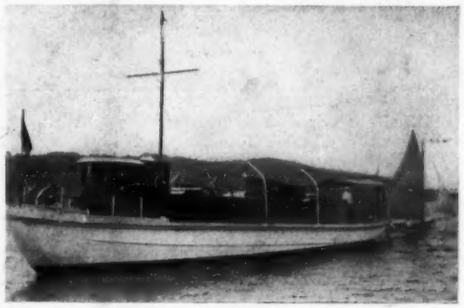


NO. 5783—FOR SALE AT SACRIFICE.—Beautiful cabin launch 46 ft. over all, 9 ft. 7 in. beam, 3 ft. 6 in. draught. Has cruised Lake Ontario and Atlantic coast from North Carolina to Cape Cod. Finished throughout in finest mahogany. Sleeps six. New 20 H. P. Globe motor; speed 11 miles. Acetylene gas light. Complete equipment. Perfect condition throughout. Ready to go in commission. Cost $6,500. Price $2,500. Owner bought larger. Seen New York. Inquire of Stanley M. Seaman, 220 Broadway, New York City.

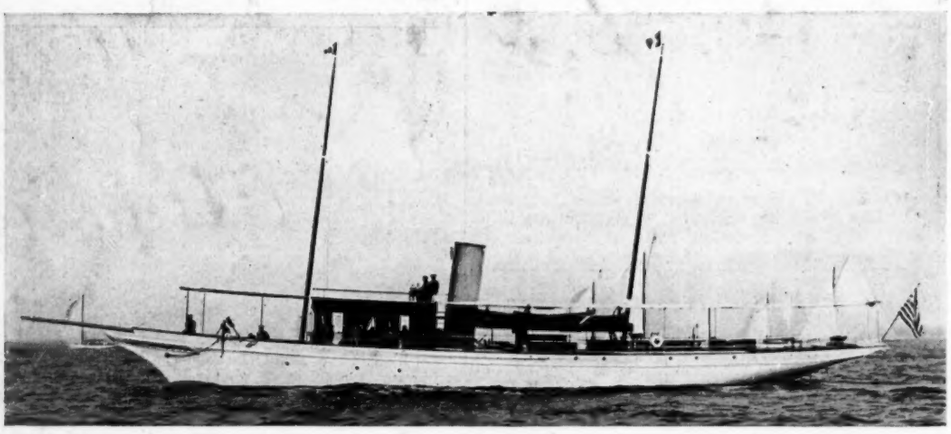


FOR SALE—Motor yacht "Florida," 50x12x3. Nearly new. Hull and machinery in the pink of condition. Splendidly equipped for cruising. Berths for nine. Bathroom, electric lights, power tender, dinghey. Copper-fastened salt-water fittings throughout. Fine sea boat. R. D. Palmer, 366 Mount Vernon Avenue, Columbus Ohio.

WANTED—30-ft. waterline yawl. Draught not over 5 ft. Rigging and hull must be in good condition. Condition of sails and outfit immaterial. Describe and state price of yawl. P. O. Box, 1592, New York City.



NO. 5762—FOR CHARTER.—Seagoing gasolene cruiser built 1907. 97 ft. over all, 17 ft. beam, 3 ft. 11 ins. draught. Very heavily constructed for sea work. Two double, two single staterooms, saloon 15x18 ft. all mahogany; bathroom with shower; two crew staterooms. 7 ft. headroom throughout; all windows screened. Large upper deck. Two 50 H. P. Standards. Speed, 10-12 miles. Built particularly for Southern cruising; has covered 40,000 miles past three years, including Great Lakes, Mississippi River, Gulf of Mexico, Cuba, Atlantic Coast, Florida to Maine. Her owner being on a round-the-world trip until June, 1910, offers her for charter in the meantime. Ready for immediate service, Jacksonville, Fla. Address Stanley M. Seaman, 220 Broadway New York City.



FOR SALE—Able and sea-going steam yacht, guaranteed in first-class condition; no outlay of money required for repairs or equipment. Length over all 110 ft., beam 15 ft. 4 in.; electric lights, storage batteries, steam windlass, steam heat, etc. Comfortable sleeping accommodation for nine people. Speed 14 miles. Inspection and offer invited. Apply to William Gardner, 1 Broadway, New York.

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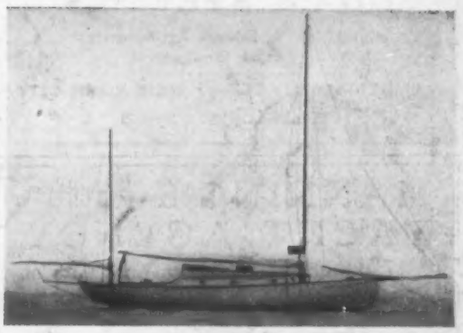
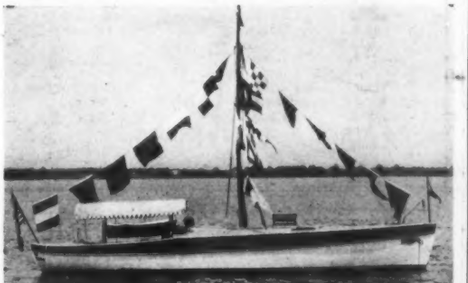
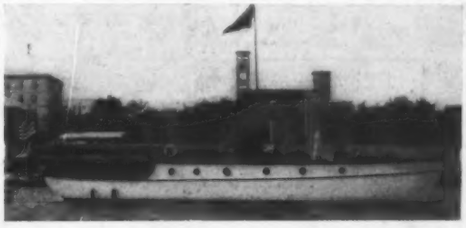
NO. 2646. Racing and cruising sloop, designed and built by Herreshoff. Dimensions, 58 ft. on deck, 37-ft. waterline, 11 ft. 2 ins. beam, 8 ft. 10 ins. draft; mahogany double planked; condition good as new. A successful prize winner. Frank Bowne Jones, Agent, 29 Broadway, New York.



NO. 3379.—Cruising yawl, designed by Mower, built 1904. Dimensions, 39 ft. on deck, 30-ft. waterline, 12-ft. beam and 4-ft. draft. Full headroom in cabin. Frank Bowne Jones, Agent, 29 Broadway, New York.



NO. 4895.—Raised deck cruiser, 42 ft. by 9 ft. by 4 ft.; designed by Hand, built this year; 18 to 23 H. P. Standard motor. Frank Bowne Jones, Agent, 29 Broadway, New York.



NO. 4600.—Raised deck cruiser, 58 x 12 4 ft.; built 1909; 6-cylinder Standard engine. Winner of this year's race to Bermuda; commodious and well built. Frank Bowne Jones, Agent, 29 Broadway, New York.

NO. 4791.—Raised deck cruiser, 37 x 9½ x 3 ft.; built 1908 Excellent accommodations for three people cruising; full headroom in cabin; 20 to 24 H. P., 4-cylinder motor. Frank Bowne Jones, Agent, 29 Broadway, New York.

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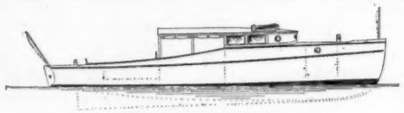

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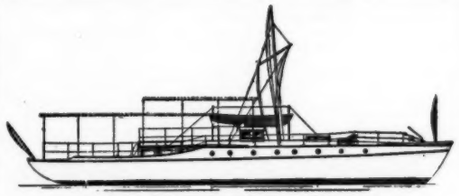

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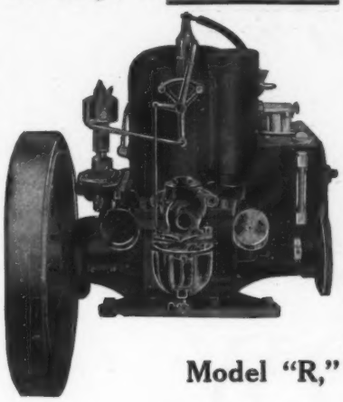
Here are a few of the races in which Gray Motors made good in the past year. It is only a partial list of Gray Winners, but it's enough to show what Gray Motors do.



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Makes good in Speed, Pleasure and Working Boats. Built as *good* as any engine can be built—of the best material that money can buy—moderately light weight, moderately high speed.

Price, complete, with fresh water outfit, $206

	Place.	City and State.	Date.	Boat.	Owner.
6 H. P. Gray won.	1st	San Diego, Cal.	Aug. 22	"Gray Streak".	G. E. Bowles.
6 H. P. Gray won.	2d	San Diego, Cal.	July 5	"Gray Streak".	G. E. Bowles.
		1st place in this race won by a Gray.			
6 H. P. Gray won	2d	San Diego, Cal.	Aug. 22	"Hummer".	F. Benham.
		1st place in this race won by a Gray.			
6 H. P. Gray won.	3d	San Diego, Cal.	Sept. 6	"Hummer".	F. Benham.
		1st place in this race won by a Gray.			
6 H. P. Gray won.	1st	Twin Lakes, Conn.		"Grayling".	C. S. Blake.
6 H. P. Gray won.	1st	Chicago, Ill.	Sept. 6	"Blanche".	E. J. Bigelow.
6 H. P. Gray won.	1st	Vincennes, Ind.	June 10	"R. E. R.".	C. Ritterskamp.
6 H. P. Gray won	1st	Vincennes, Ind.	June 17	"R. E. R.".	C. Ritterskamp.
6 H. P. Gray won.	1st	Vincennes, Ind.	June 24	"R. E. R.".	C. Ritterskamp.
6 H. P. Gray won.	1st	Detour, Mich.	Aug. 12	"Friendship".	G. W. Bryant.
6 H. P. Gray won.	1st	Clear Lake, Ia.		"Ho-Bo".	Mark White.
6 H. P. Gray won.	1st	Friendship, Me.	Aug. 21	"Greyhound".	A. E. Condon.
6 H. P. Gray won.	1st	Waldoboro, Me.	Sept. 6	"Greyhound".	A. E. Condon.
6 H. P. Gray won.	1st	Waldoboro, Me.	Sept. 6	"Greyhound".	A. E. Condon.
6 H. P. Gray won.	2d	Sabula, Ia.	June 17	"Perhaps".	Fred Goos.
6 H. P. Gray won.	1st	Savanna, Ill.	Sept. 2	"Perhaps".	Fred Goos.
6 H. P. Gray won.	2d	Port Huron, Mich.	July 3	"Spray".	A. J. Green.
6 H. P. Gray won.	1st	Keansburg, N. J.	Sept. 6	"Lilia".	T. Tenadale.
6 H. P. Gray won.	1st	Keansburg, N. J.	Sept. 6		Ed. Gardener.
6 H. P. Gray won.	2d	Portsmouth, O.	Oct. 4	"Alice Valor".	Wm. Journey.
6 H. P. Gray won.	1st	Alene, Ore.	May 22	"Theodore".	O. C. Stanwood.
6 H. P. Gray won.	2d	Burlington, Vt.	July 6	"Santa Marice".	J. S. Denning.
		1st place won by a Gray.			
6 H. P. Gray won.	1st	Burlington, Vt.	Aug. 3	"Santa Marice".	J. S. Denning.
6 H. P. Gray won.	2d	Burlington, Vt.	Aug. 3	"Santa Marice".	J. S. Denning.
		1st place won by a Gray.			
6 H. P. Gray won.	1st	Burlington, Vt.	July 6	"Brush".	A. L. Whiting.
6 H. P. Gray won.	2d	Burlington, Vt.	Aug. 3	"Brush".	A. L. Whiting.
6 H. P. Gray won.	1st	St. Catherines, Ont.	Aug. 25		B. W. Jones.
6 H. P. Gray won.	1st	Toronto, Ont.	Aug. 7	"Velo".	H. R. Frost.
6 H. P. Gray won.	1st	Newport Bay, S. Cal.	July 5	"Pop-Along".	J. P. Burnham.
6 H. P. Gray won.	1st	Conesus, N. Y.			L. E. Van Doren
4 H. P. Gray won.	1st	San Diego, Cal.	July 5	"Roma".	W. Layman.
4 H. P. Gray won.	1st	Tottenville, N. Y.	Sept. 6	"Scamp".	C. W. Cole.
4 H. P. Gray won.	1st	Morristown, Pa.	Aug. 16	"U. S. A.".	M. L. Ganser.
4 H. P. Gray won.	2d	Morristown, Pa.	Aug. 16	"U. S. A.".	M. L. Ganser.
4 H. P. Gray won.	2d	Rotorua, N. Z.		"Marama".	D. Lundon
4 H. P. Gray won.	2d	Savanna, Ill.	Sept. 2	"Ida Grace".	A. B. Stanley.
4 H. P. Gray won.	1st	Savannah, Ga.		"Irene".	L. C. Aveilhe.
3 H. P. Gray won.	2d	San Diego, Cal.	July 5	"Cooko".	J. M. Pauter.
		1st place in this race won by a Gray.			
3 H. P. Gray won.	1st	Woodmere, N. Y.	Aug. 21	"Radie M".	Chas. Walsh.
3 H. P. Gray won.	2d	Woodmere, N. Y.	Sept. 4	"Radie M".	Chas. Walsh.
10 H. P. Gray won.	2d	Stratford, Conn.	Sept. 2	"Nancy Van".	C. E. Rogers.
10 H. P. Gray won.	1st	Detour, Mich.	Aug. 12	"Winona".	W. L. Campbell.
10 H. P. Gray won.	1st	Pt. Carling, Ont.	Aug. 14	"Kalamazoo".	C. S. Dayton.
10 H. P. Gray won.	1st	Atlantic City, N. J.	July 20	"Lady Gray".	W. Cramer.
10 H. P. Gray won.	2d	San Diego, Cal.	July 5	"Grayling".	H. Northern.

	Place.	City and State.	Date.	Boat.	Owner.
2½ H. P. Gray won.	1st	Medford, Mass.	Aug. 25	"D. O. T.".	W. R. Chandler.
2½ H. P. Gray won.	2d	Medford, Mass.	Aug. 25	"D. O. T.".	W. R. Chandler.
12 H. P. Gray won.	1st	San Diego, Cal.	July 5	"Black Cat".	T. C. Hammond.
12 H. P. Gray won.	1st	San Diego, Cal.	Sept. 6	"Black Cat".	T. C. Hammond
12 H. P. Gray won.	1st	Davenport, Ia.	Aug. 18	"Viola".	Ed. Gerke.
12 H. P. Gray won.	1st	Fairhaven, Mass.		"Gray-Hound".	J. M. Perry.
12 H. P. Gray won.	1st	Seattle, Wash.		"Pokey".	G. J. Hildebrand.
12 H. P. Gray won.	1st	Seattle, Wash.		"Lady Jane Grey".	S. V. B. Miller.
12 H. P. Gray won.	1st	Seattle, Wash.		"Lady Jane Grey".	S. V. B. Miller.
12 H. P. Gray won.	1st	Burlington, Vt.	July 6	"Rip".	Robt. Peterson.
12 H. P. Gray won.	1st	Plattsburg, N. Y.	Sept. 6	"Rip".	Robt. Peterson.
12 H. P. Gray won.	1st	Burlington, Vt.	Aug. 8	"Rip".	Robt. Peterson.
12 H. P. Gray won.	1st	Burlington, Vt.	Aug. 8	"Rip".	Robt. Peterson.
12 H. P. Gray won.	1st	Burlington, Vt.	Aug. 8	"Rip".	Robt. Peterson.
12 H. P. Gray won.	1st	Patchogue, N. Y.	Aug. 21	"Dido".	Fred Creighton.
12 H. P. Gray won.	1st	Portland, Ore.	May 30	"Alta".	Siegfried Bros.
12 H. P. Gray won.	1st	Portland, Ore.	Sept. 6	"Alta".	Siegfriend Bros.
12 H. P. Gray won.	1st	Saratoga Springs, N. Y.	Sept. 6	"Greyhound".	J. C. Hodges.
12 H. P. Gray won.	1st	Ecorse, Mich.	Aug. 20	"Sylph".	W. Rummels & Fred Hays.
12 H. P. Gray won.	1st	Grosse Isle, Mich.	Sept. 6	"Sylph".	W. Rummels & Fred Hays.
12 H. P. Gray won.	1st	Lowell, Mass.	Sept. 3	"Frolic".	John L. Laing
18 H. P. Gray won.	1st	Sabula, Ia.	June 17	"Mosquito".	E. W. Granger & C. W. Myers.
18 H. P. Gray won.	2d	Sabula, Ia.	June 17	"Mosquito".	Granger & Myers.
18 H. P. Gray won.	1st	Rock Island.	July 3	"Mosquito".	Granger & Myers.
18 H. P. Gray won.	1st	Burlington, Ia.	July 6	"Mosquito".	Granger & Myers.
18 H. P. Gray won.	1st	Clinton, Ia.	Aug. 30	"Mosquito".	Granger & Myers.
18 H. P. Gray won.	1st	Savanna, Ill.	Sept. 2	"Mosquito".	Granger & Myers.
18 H. P. Gray won.	2d	Savanna, Ill.	Sept. 2	"Mosquito".	Granger & Myers.
18 H. P. Gray won.	2d	Savanna, Ill.	Sept. 2	"Mosquito".	Granger & Myers
18 H. P. Gray won.	1st	Guernsey, C. I.	Aug. 12	"Mermaid".	G. F. Haynes.
18 H. P. Gray won.	1st	Guernsey, C. I.	Aug 12	"Mermaid".	G. F. Haynes.
18 H. P. Gray won.	2d	Guernsey, C. I.	Aug. 12	"Mermaid".	G. F. Haynes.
		1st place in this race won by a Gray.			
18 H. P. Gray won.	2d	Guernsey, C. I.	Aug. 12	"Mermaid".	G. F. Haynes.
		1st place in this race won by a Gray.			
18 H. P. Gray won.	2d	Guernsey, C. I.	Aug. 12	"Sirius".	G. F. Peek.
		1st place in this race won by a Gray.			
18 H. P. Gray won.	1st	Guernsey, C. I.	Aug. 12	"Sirius".	G. F. Peek.
18 H. P. Gray won.	1st	Guernsey, C. I.	Aug. 12	"Sirius".	G. F. Peek.
24 H. P. Gray won.	1st	Savannah, Ga.	May 29	"Carrie".	E. W. Carson.
24 H. P. Gray won.	1st	Savannah, Ga.	July 31	"Carrie".	E. W. Carson.
24 H. P. Gray won.	1st	Savannah, Ga.	Aug. 14	"Carrie".	E. W. Carson.
24 H. P. Gray won.	2d	S. Atlantic Champ'ship	Oct. 10	"Carrie".	E. W. Carson.
20 H. P. Gray won.	1st	Portsmouth, O.	Oct. 4	"Turk".	T. M. Burt.
20 H. P. Gray won.	1st	Clinton, Ia.	May 31	"Outing 2".	H. A. Kelley.
20 H. P. Gray won.	1st	Clinton, Ia.	May 31	"Outing 2".	H. A. Kelley
		Championship I. L. Y. A.			
40 H. P. Gray won.	1st	Toledo.	Aug. 27	"Grayling".	O. J. Mulford.
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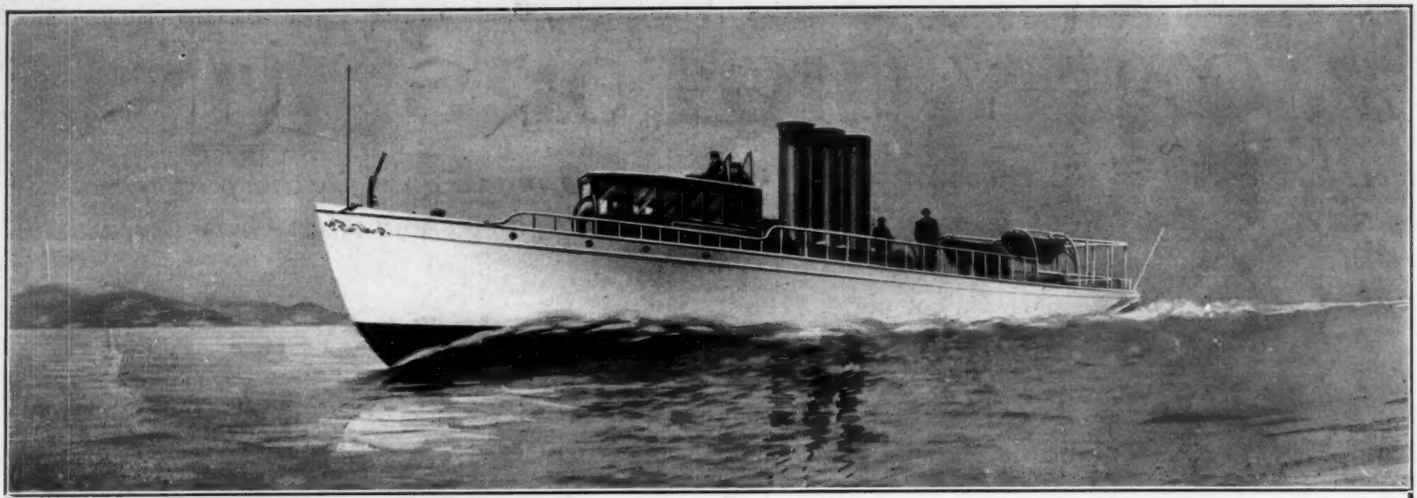

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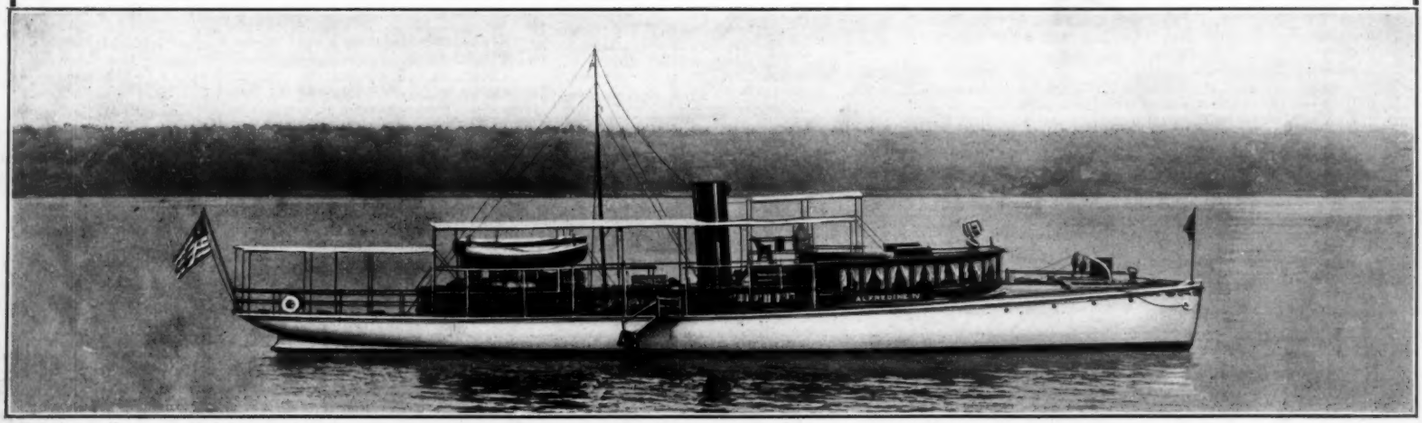

"ALFREDINE IV," THE 18 MILE, 99-FOOT GASOLENE CRUISER, DESIGNED AND BUILT BY US FOR MR. RALPH E. SLAVIN.

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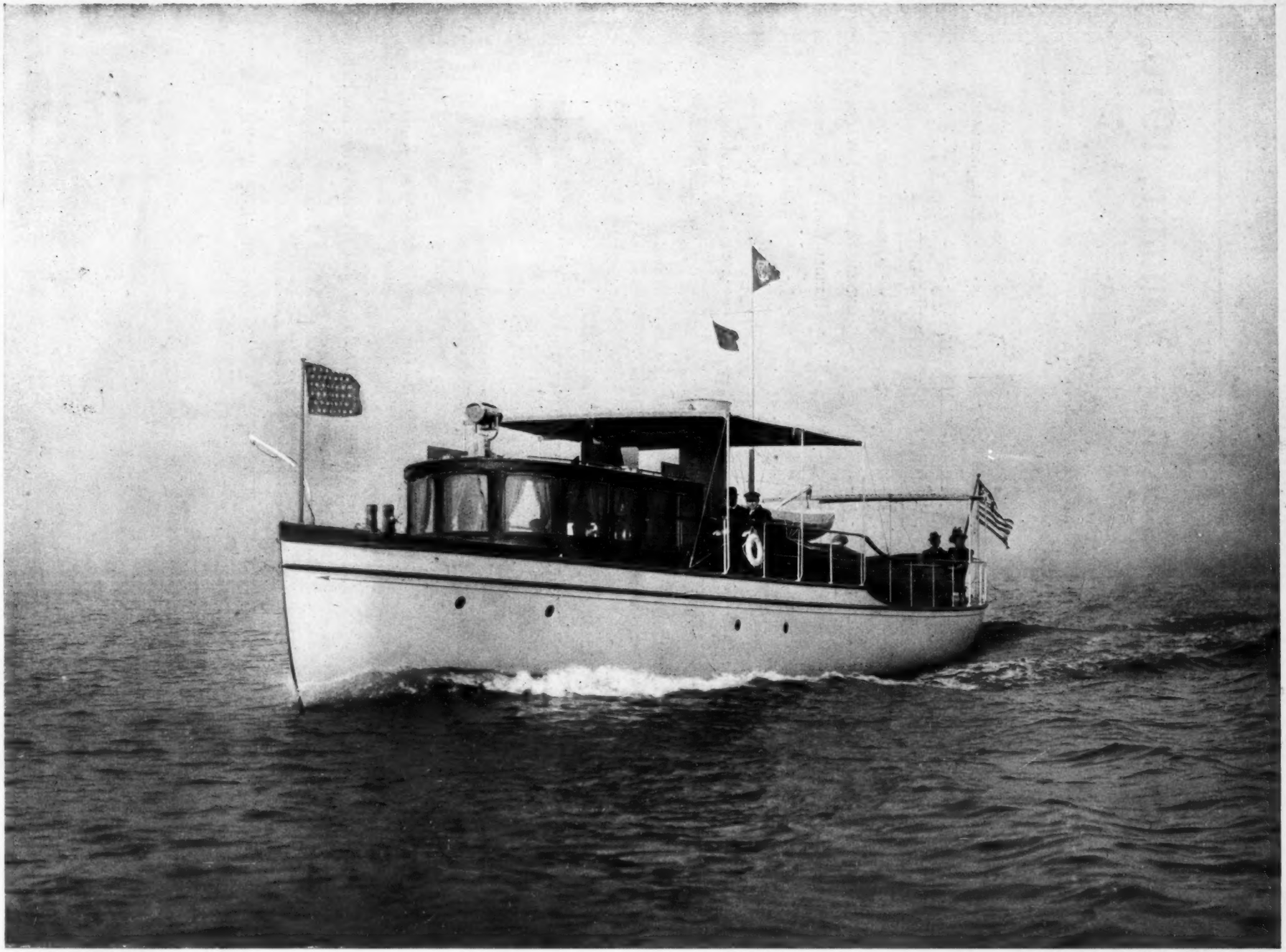

IGLOO, A 78-FOOT POWER CRUISER, IN WHICH MUCH CONSIDERATION WAS GIVEN TO LIGHT AND VENTILATION.

See page 49.

YACHTING

VOLUME VII. NUMBER 1 January, 1910 25 Cents a Copy $2.00 a Year

A Cruise to the Bahamas

by Dr H Baer

URSA WAS A 42-FOOT RAISED-DECK CRUISER WHOSE EVERY LINE SPELLED ABILITY.

IT was the morning of the first of June and all was bustle and excitement in the little port, for it was the day that we had long been preparing for, the day upon which our cruise around the lower end of the Florida peninsular to the islands over which float the British ensign, the alluring Bahamas, was to begin.

Bradentown, our home port, was situated on the Manatee River, a stream emptying into Tampa Bay, about twelve miles from the Gulf of Mexico, and while, perhaps, it would require a magnifying glass to locate it on the map, it is famed, nevertheless, for the beautiful river on which it stands, its delightful climate, and for the oranges and celery which it contributes to the Northern markets.

Perhaps a description of the boat in which we were to undertake the voyage is first in order, as on a trip across open water the boat is usually the chief item of interest. Ursa is a raised-deck cruiser, forty-two and one-half feet long over all, nine feet beam and drawing four feet of water. She was built in Bradentown by a local builder with a vague notion of participating in the 1909 Bermuda race, but on account of the distance from her home port to New York and the length of time it would take to get there, the idea was eventually abandoned. Her power consists of a three-cylinder, 6 x 8 Standard motor, turning 350 revolutions per minute, and rated at 18 horsepower. I will finish this description of the engine by stating that we never had to touch it from start to finish of the trip and not once did it give us trouble.

CAPE FLORIDA LIGHT.

Our gasolene capacity was one hundred and eighty gallons, carried in two tanks placed beneath the floor of the self-bailing cockpit. The longest distance we ran without refilling was four hundred miles, and at that time we had enough left to carry us an additional fifty or seventy-five miles.

Our ground tackle for the trip consisted of a twenty-five pound patent anchor, with twenty-five fathoms of rope cable, which we used as a stern anchor when mooring in narrow rivers or when anchoring for a short time only, as it could not be depended upon to hold her. The starboard anchor, which is the one we generally used, was a thirty-six-pound patent, with fifty fathoms of three-eighths chain, and usually held in anything short of a blow, while our large anchor was a seventy-six pounder, with fifty fathoms of seven-sixteenths chain. This was our storm anchor and saw good service on the cruise.

Theoretically, when the port lights were shut and the skylight battened down, the boat was waterproof and could be turned into a submarine. I say theoretically, for, in reality, when the seas were rolling over the decks two feet deep, a fair proportion of them found their way through the skylight and under the companion slide, so that it was possible to get quite a respectable shower bath on the inside.

As a tender we carried an eight-foot Davis dinghy, which weighed sixty-five pounds, on a pair of patent davits on the port side of the cockpit. We were well equipped with life preservers, and had a good supply of oil in case we should need it, and, of course, all the charts procurable covering the waters we were to traverse, and a good many extra ones in case we were driven out of our course. A sextant,

THE MOUTH OF THE MIAMI RIVER.

parallel rulers, patent log, lead line, etc., made up our navigating equipment, with a good four-inch spirit compass, which we had thoroughly tested for deviation before starting and compiled a deviation table for it.

The writer was navigator and cook, the first officer was also the dishwasher and bore the name of Frank, while the crew answered to the appellation of Harry, on the few occasions when we could find him sufficiently awake to answer any summons but the dinner bell.

As the weather bade fair to be fine, the captain and crew, after bidding good-bye to a large number of friends who mournfully prophesied their failure to return, cast off the lines at 7:45 a. m. and were off, with Nassau, the chief city of the Bahama Islands, as their port of destination.

About three miles down the river lies the city of Palma Sola, which, being interpreted, means lone palm, though if the city had been named Caso Solo, or lone house, it would have fitted it equally well. At this metropolis we stopped to pick up the first mate, and at eight-thirty left on what was to be a no-stop run of over 200 miles, across the Gulf to Key West, our first port of call. At 9:32 we crossed the bar at Passage Key Inlet, and laid our course S. by E. ½ E. for the Key West Northwest Passage bell buoy, distant 181½ nautical miles. The barometer was 30.01, wind light S. W., thermometer in cabin 89 degrees, sea smooth and sky clear.

During the day we sighted eight sponge schooners, a fruiter and the topmasts of a four-master schooner, and at 3 p. m. lost sight of the land. The log averaged eight knots, with the engine running 342 r. p. m. At 5 p. m. the wind backed to S. S. E. and by 7 it was blowing a fresh breeze, with a S. E. swell running, squalls making up all around and everything pointing to a bad night. About midnight a heavy squall struck us and we had a hard downpour of rain, after the squall the wind went to E. S. E. and blew half a gale, with a big swell running, increasing in size all the time, and by 2 a. m. we were putting our bow out of sight and rolling solid water aft into the cockpit.

At 4 a. m. we passed close to the steamer Olivette, of the P. & O. Line, and she was rolling around at a lively rate. The wind now increased to whole gale and the seas continued to grow bigger. We had figured on sighting land about seven-thirty, and by the patent log should have had it in sight, but could not tell just how much the wind and head sea had held us back. So we hove the lead, getting 11½ fathoms, so knew we still had three or four hours to run.

At eight o'clock the seas got so heavy that we slowed the engine down to about five knots' speed, changed her course to S. E. and made a great deal better weather of it. We ran under slow speed until ten-thirty, when the seas started to go down a little and we supposed we were approaching the land. Speeded the engine up to the former rate of 342, and, at eleven-fifteen, sighted land four miles east of Key West. Ran in under the lee, and at twelve-thirty let go the anchor, twenty-eight hours out, the engine having never missed an explosion.

We opened up the boat to let her cool off a little and spread the cushions and bedding on deck to give them the benefit of the sun, which they needed sorely, after which we proceeded to cook dinner, as it had been so rough in the morning that cooking was out of the question, and we had had nothing to eat since six o'clock the evening before, except a few doughnuts, which the captain's better half had been thoughtful enough to put aboard. After a two hours' rest we got our anchor, which came up minus one fluke, and proceeded to the docks at Key West, entering the northwest channel just inside the south end of the jetty, and

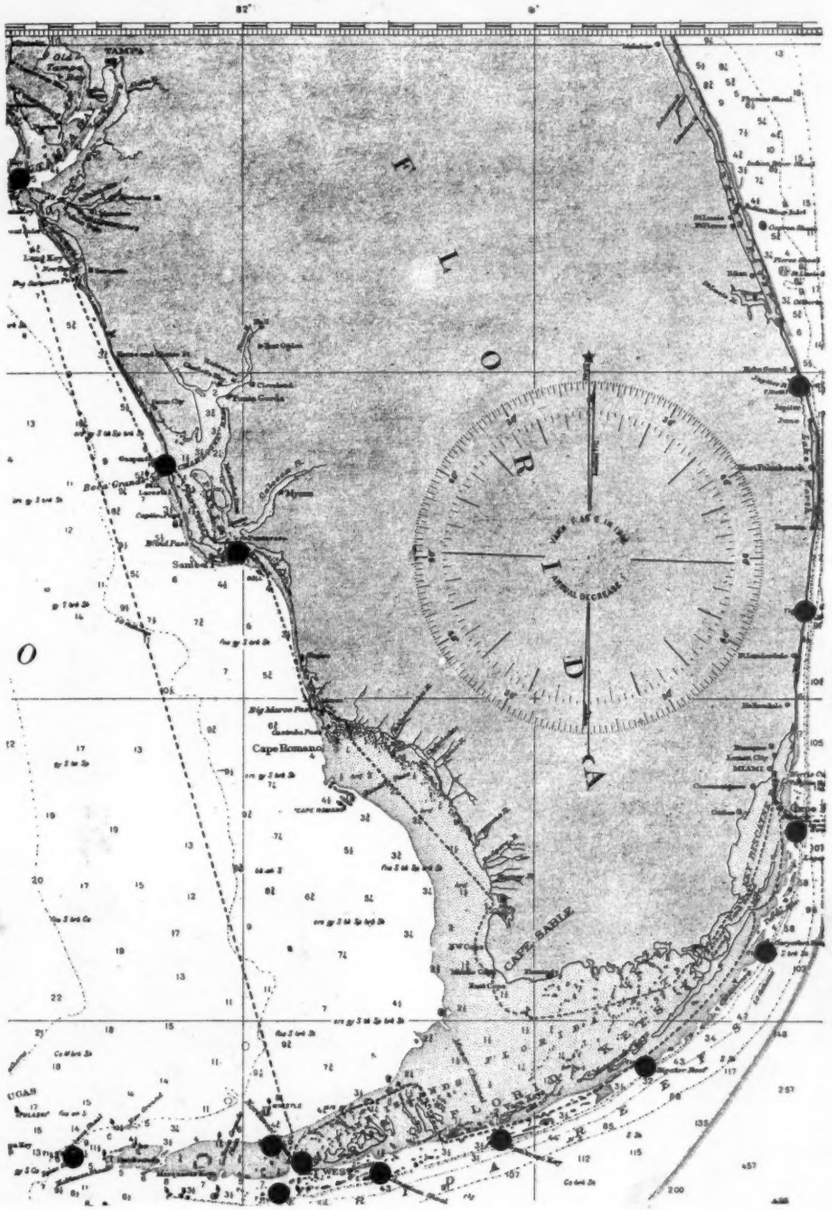

CHART OF LOWER HALF OF FLORIDA, SHOWING ROUTE OF URSA THROUGH THE KEYS.

reached the town about three p. m.

Later we went ashore and wandered about the town until the approach of a rain squall sent us hurrying aboard to take in the bedding, which was being sunned. Key West is the most southern town in the United States, but scarcely resembles an American city, having been largely settled by Cubans and Bahamians, and has the appearance of a British West Indian town. It is a busy port, with plenty of vessels always to be seen. The United States revenue cutter Forward was anchored in stream close by, and also the buoy tender and a very fine sea-going tug, the Osceola.

The captain, like the Ancient Mariner, blessed the Giver of Sleep that night, for he had not closed his eyes on the way down. The following day dawned bright and clear and the crew was sent ashore to buy some crawfish for breakfast. We spent that day in Key West, with no excitement except a rainsquall in the afternoon, which came down while the captain was watching a loggerhead turtle being butchered with the idea of procuring some turtle eggs, one of his weaknesses, and a supply of turtle meat.

The first mate was noticed every now and then jotting down notes in a pocket diary, and as we knew he was poetically inclined, thought it a good plan to investigate and find out in what direction the muse was carrying him. After much persuasion from the captain and crew, and after threats of having to call in the crew of the revenue cutter if he mutinied, he overcame his blushes, lit his pipe, reached down into a pocket in the seat of his overalls, pulled out a little black book and read the following lines:

We sailed through sound, and pass, and bay;
We traveled slow, we traveled fast;
We worked through many a devious way
And reached our looked-for port at last,
Running the breakers when we dar'st.
We saw afar the masted fleet
Which now, the ocean dangers past,
Lay sweltering in the summer's heat.

We bumped our keel o'er coral rocks
Which the swift tides gently lave;
We found the shoals, with many a knock,
Where the graceful palm trees wave.
We dallied in an ocean cave
Until the tide began to rise,
We gathered what the ocean gave,
In colors bright as tropic skies.

L'ENVOI.

Key West, we sought thee from afar;
We baffled winds, we sailed the main.
Key West, my fondest wishes are
That we may live to meet again.

URSA AT ANCHOR IN THE MIAMI RIVER OFF THE TOWN OF THAT NAME.

ON THE MIAMI RIVER THEY OFTEN MOOR THE YACHTS TO THE BANK.

WE SHIPPED OUR GASOLENE TO NASSAU IN A LITTLE SCHOONER.

THE OCEAN-GOING TUG OSCEOLA COALING AT KEY WEST.

After he had finished we proceeded to criticise his work, trying to show him that he was doing the navigator a gross injustice by accusing him of hitting coral rocks and bumping sand bars, when the only thing that that ever touched bottom was the lead, but he brought forward a claim to poetic license, and as the rest of us were not versed in such literary technicalities, we had to submit, only insisting that the next time he made an attempt he would stick closer to the truth.

The mate and crew went ashore after supper, and upon arriving on board after midnight claimed that they had lost their way, a seemingly impossible feat on an island where you can't walk over a half mile in one direction if you try. The captain accepted the explanation, deeming it wise not to probe too deeply.

Friday, June 4. Up at daylight, cooked breakfast and underway at six-thirty, with an overcast sky and strong S. S. E. winds. Started out around Fort Taylor to get into Hawks' Channel, intending to to to Miami that way, but when we got abreast of the fort, found such a big sea running that we decided to take a quieter route; so retraced our course, ran out the North West Passage to the inner end of the jetties, crossed the shoals, and started eastward, on the north or inside of the islands, thus getting comparatively smooth water. We ran on past Harbor Key and entered the channel which lies between the shoals that make out about two miles to the northeast.

We went behind the key and anchored in 19 feet of water, close by a sponger, who was busy with a water glass and sponge hook. We had intended trying for some tarpon, which are usually to be found here, but as we saw none striking, did not get our lines out. After dinner we decided to continue our run so as to make Knights' Key by dark, as the weather promised to be good and we could get an early start out into Hawks' Channel. Got up anchor about 3 p. m. and headed between the keys, in what is known as the Big Spanish Key Channel. The chart only shows three feet of water in places through this channel, but five feet can be carried through without trouble, and as it is well staked, no one should have any difficulty. We reached Knights' Key, the present terminus of the Florida East Coast Railroad, and anchored for the night, just inside the stone arches which are to bridge the way to Key West.

The next day we got an early start, ran out into Hawks' Channel, between the piers of the bridge which are not yet arched over, getting a fine view of the work being done by the railroad

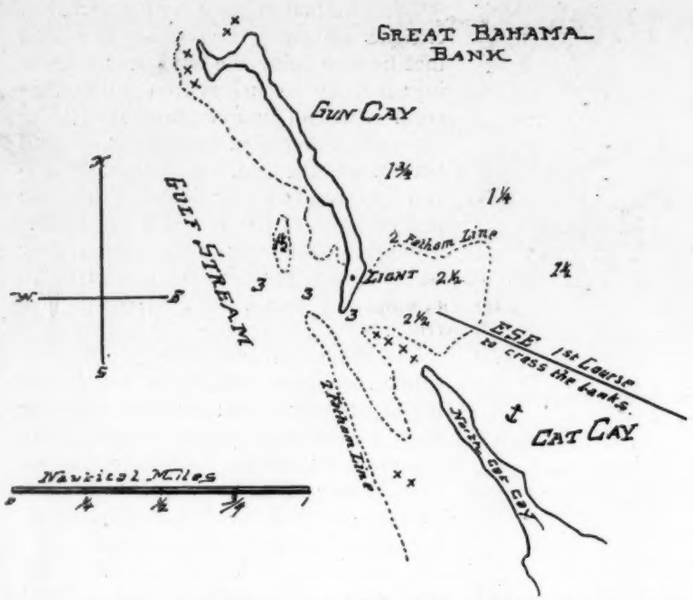

CHART OF GUN CAY ANCHORAGE. THE MOST PROTECTED MOORING IS SHOWN BY THE ANCHOR BACK OF NORTH CAT KEY.

company in the gigantic undertaking of carrying a railroad out to sea. We bucked the sea all day, passing a great many steamers bound south, sticking close in to the reefs to avoid the current of the Gulf Stream, which here runs very strong.

About noon we ran in behind a shoal and anchored an hour for dinner in a well protected little harbor. Afterwards we went on until four o'clock, when we reached Old Rhodes' Bank Buoy, and seeing that we could not make Miami before dark and there being no very good anchorage in Hawks' Channel beyond this point, decided to go through the creek into Biscayne Bay and keep running until dark, as, of course, we could anchor anywhere inside the bay. But we had counted our chickens before they were hatched, for, as we turned into the shore with the sun in our eyes, and undertook to wind our way between the shoals, we soon fetched up on a mud flat.

The mate and crew got overboard and soon had her afloat again, but we gave up the attempt, threw over the small anchor and proceeded to take a bath. A squall from the northeast suddenly came up and Ursa started to walk off with her ground tackle, so we scrambled aboard and made things secure. Though about a mile and a half from shore, the mosquitos started to come aboard as soon as the squall was over. We put up screens, however, and went below to be sung to sleep by the lullaby of millions of mosquitoes, happily for us on the outside.

Sunday, June 6. When we got up we found every mesh of the wire had a mosquito's bill sticking through, daring us to to come close enough to give them a show. Had breakfast below and crawled out, being careful not to let the mosquitos inside. We got under way quickly and after vigorous brushing with bath towels managed to get the majority of the pests to seek other quarters. Continuing up Hawks' Channel we entered Key Biscayne Bay by the Cape Florida Swash Channel, reaching Miami at 9:30 a. m.

Although it was Sunday, we found everything open and went uptown to get ice, bread and other provisions. We laid alongside the Standard Oil Company's dock and found the agent most obliging, doing everything in his power to make us comfortable. Nearby lay a schooner, Julia Elizabeth, bound for Nassau, so our captain and mate got busy trying to extract information from her crew concerning the best route to take, but found it a difficult job to get them to loosen up.

Monday, June 7, we lay in Miami all day, varnishing and getting the ship generally cleaned up. The following day we filled up our tanks with gasolene and water, took on ice and provisions, went up to the Customs House and got a bill of health (no fee), which was the only paper we needed for the trip. A bill of health is a very small piece of paper, but woe betide you if you go foreign in Southern waters without it, and worse than woe will betide you if you come back without one, or forget that Uncle Sam has a Customs House, when you return.

The Standard Oil agent told us that we would find gasolene very high in price in Nassau, and advised us to ship over what we needed. This we did by the Julia Elizabeth, which left that morning. Paid six cents a gallon freight on it, but even then saved twelve cents a gallon over what it sold for in Nassau.

After dinner we bade Miami farewell and ran out to Cape Florida, anchoring just inside the inner red beacon, with the intention of starting across the Gulf Stream at daylight. By 8 p. m. it was blowing hard squalls from E. N. E. and we put down both anchors, with 16 to 18 fathoms of chain apiece. It blew all night, so when daylight came we decided not to attempt the Stream, and instead lay at anchor in Cape Florida swash channel all day. We went ashore on the cape, which is covered with cocoanut palms, and climbed the old lighthouse, which is in a very dilapidated condition, having been abandoned by the government when they built the light on Fowey Rocks, about four miles from shore on the outer edge of the reef. We also went overboard and caught some sponges and some broad-lipped conchs, which we opened, and put the meat on ice, having it fried for supper, and a mighty good meal it makes. In the afternoon we had the usual hard rain squall.

Thursday, June 10, we were up at 3:30 to find it squally and blowing hard, so decided to stay where we were. About 7:30 the wind moderated, although it still looked squally in the northeast, and we concluded to try the crossing. So we got under way and passed the bell buoy at 8:17, the wind being E. by N., with a big sea in the Gulf Stream, that made us batten down everything. Even then we took in considerable water through the skylight on the way across.

We figured on seven and a half knots' speed of boat, a two and a half knot current in stream, distance forty-three miles and true course E. ⅛ S., so steered E. by S. ½ S.

Lost sight of Fowey Rocks Lighthouse at 10:10 and passed two steamers southbound. One seemed to be a liner and the other a tramp. Flying fish also made their appearance, the first we had seen on this cruise. About noon the sea started to go down and things got considerably quieter, though oil skins were still needed.

A little after 2 the crew pointed to the mate, who was standing

MEALS WERE OFTEN SERVED IN THE COCKPIT.

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on deck spouting one of his school-boy recitations. All that we were able to catch was:

"Welcome as the cry
That told the Indian Isles were nigh,
To the world-seeking Genoese,
When the soft winds from Isles of Palm,
And orange groves and fields of balm
Blew o'er the Haitien Seas."

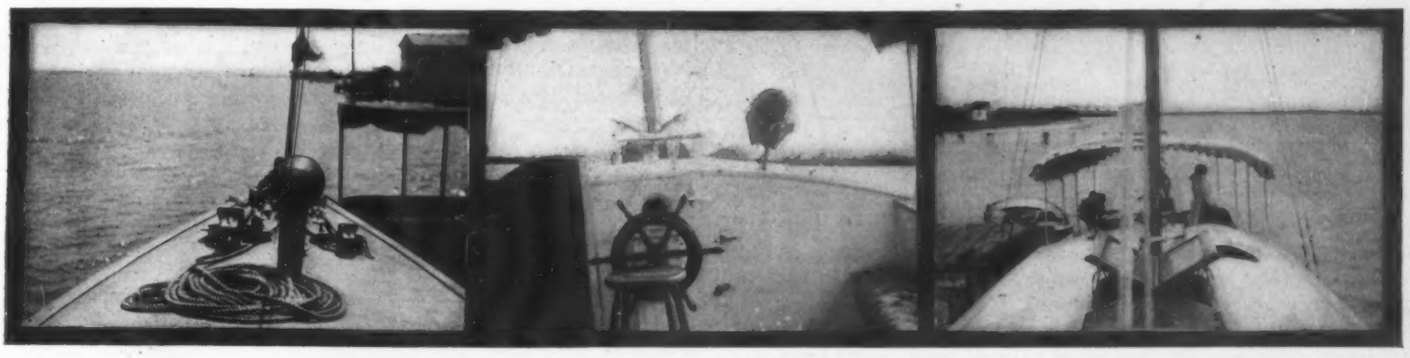
GUN CAY LIGHT FROM THE GULF STREAM.

And upon following his gaze we saw land on the port bow, and a white object which we took to be Gun Cay Lighthouse, for which we were heading. In a little while we could make out the trees and what seemed to be the masts of a vessel close by the light, so ran for it; but on getting closer discovered our lighthouse to be the spanker of a four-masted schooner anchored on soundings off North Bemini. Went aloft and discovered the lighthouse about eight miles to the southward, so headed down against the stream just outside the edge of soundings, and as we neared the islands sent up our flags. In a few minutes we saw the British ensign go up on the pole beside the lighthouse, and when we had brought the light abeam ran for it until close on the cliffs, then followed the beach around the point and came to an anchor behind it in two fathoms of water, about two hundred yards from the rocky cliff, which is the nearest approach to a beach there was. We were now on the Bahama banks, exposed to the wind which swept across them, with an angry-looking lee shore, upon which the waves were beating heavily only a few hundred feet away.

This is the spot marked on the chart as an anchorage, and it may be all right for large vessels seeking shelter from a blow, but the holding ground looked bad, and for a boat of Ursa's size is not what you might call a comfortable berth. We deemed it wise to find a better place, so the mate pulled the captain ashore in the dinghy to visit the lighthouse keeper.

As it was quite difficult to find a landing place for the dinghy, we finally had to get overboard and carry it up on the rocky cliffs. Found the keeper and his assistant very pleasant and anxious to be of service in any way possible. They told us that we were in a very exposed situation, with bad holding bottom, but could find good bottom, more or less sheltered, by running down behind North Cat Cay until the north point lapped the point of Gun Cay, where we would have a seven-foot shoal to break the force of the sea. We went up to the lighthouse, which is a conical stone structure, the lower part being white and upper part red. The lantern shows a red flash of five seconds' duration, with a ninety-seconds' interval. The two keepers and their families are the only people on the island and are visited by the lighthouse tender once every quarter, with a mail boat from Nassau once a month, so that visitors are quite a treat. After writing our names in the visitors' book we went back aboard the Ursa, got up anchor and ran down behind Cat Cay, where we anchored about three hundred yards from shore in a much better berth, but by no means a mill pond.

(To be continued.)



Off The Banks

The mates are all a-cursin' and the skipper's looking hard,
And the quartermaster, steerin', has his eyes gummed on the card,
While the poor third mate is swearin' at the men that heave the log,
And the ship is steaming quarter-speed thro' a yellow, drippin' fog;

For we have got the mails aboard, an' passengers as well,
An' the ice is all around us, so the skipper's raising Hell;
While Newf'n'land lays somewhere just off the starboard bow,
An' the fishin' boats are all around and making quite a row.

The lookout man is peering hard thro' the fog bank right ahead,
An' the third mate's jumpin' crazy round the deep-sea soundin' lead,
An' the skipper's glowering o'er the chart, with his rulers in his hand,
And the syren's hootin' all the time an' joinin' in the band.

Then it's "Iceberg right ahead o' us, and a schooner off to port!"
And the Cape Race signal banging off with a regular report,
While the skipper growls an order, and the steersman he repeats,
While the mate he mutters curses on the whole Grand Banking fleets.

Half-speed, quarter-speed, and "Hard aport the wheel!"
Creeping thro' the clammy fog, while the mist wreaths whirl and reel,
Watching for the ice blink, and the dories all around,
An' your ear-drums nearly burstin' with the syren's roaring sound.

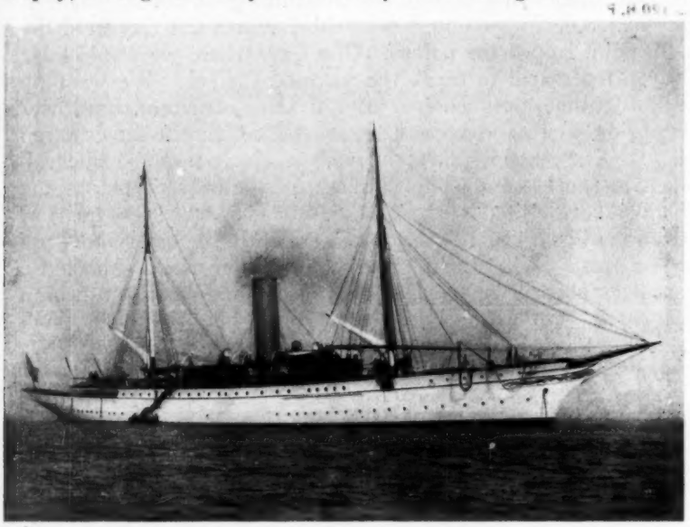
Can ye blame the mates their language? Can ye blame the skipper's swear?
Can ye understand the reason why the gray is in his hair?
Can ye see why we are busy with the lookout, lead and log,
And the ice and schooners all around, in a dense Newfoundland fog?

F. W. WALLACE.

The Month in Yachting

IT is pleasing to hear that there now seems every probability of a race for the Seawanhaka Cup next summer. The time-honored trophy—surely an existence of fourteen years gives the mug claim to that high-sounding title—has been resting in the custody of the Manchester (Mass.) Yacht Club for four years—ever since the fleet sloop Manchester went up to Lake St. Louis and wrested the prize from the Royal St. Lawrence Yacht Club's defender Alexandra. Four years is a long while for a cup which has so many claims to international fame to lie idle, and it is hoped that, once races for it are started again, they will become the usual yearly events which used to be the case.

Certainly there is every manifestation of good-fellowship beeween the American and Canadian organizations to insure the best of sport. It will be remembered that the Royal St. Lawrence Club challenged last year, and that the holders of the trophy, through the deep interest they were taking in the *Sonder-*



STEAM YACHT VARUNA, EUGENE HIGGINS, OWNER, RECENTLY WRECKED NEAR FUNCHAL, MADEIRA ISLANDS.

klasse races, requested the Canadian club to withhold its challenge for a year. To this the St. Lawrence club consented, in the best spirit. Thus when the challenge came for the 1910 race it was promptly accepted. Speaking of good-feeling, it might as well be noted that the Southern Yacht Club, under whose burgee Manchester now sails, has sent word to its Massachusetts brethren that, if so desired, that fast sloop will be sent North to serve as a trial-horse for any defender, or defenders, that may be built. It is altogether likely that this offer will be accepted.

The Seawanhaka trophy has had an interesting career. It was first offered by the Seawanhaka Corinthian Yacht Club, of Oyster Bay, as an international small-boat trophy. In 1895 Spruce IV was brought over from England by Arthur Brand. She was a half-rater, designed by Hope. The next year the Royal St. Lawrence Yacht Club came down to Long Island with Glencairn, a Duggan half-rater, and walked away with the prize. In 1897 the Seawanhaka Club went to Lake St. Louis and pitted Momo, a Clinton Crane-designed sloop, against Glencairn II. The Canadians won. The Oyster Bay yachtsmen made further attempts in 1898 and 1899, and then, tired of failure, withdrew and permitted other American clubs to enter the field.

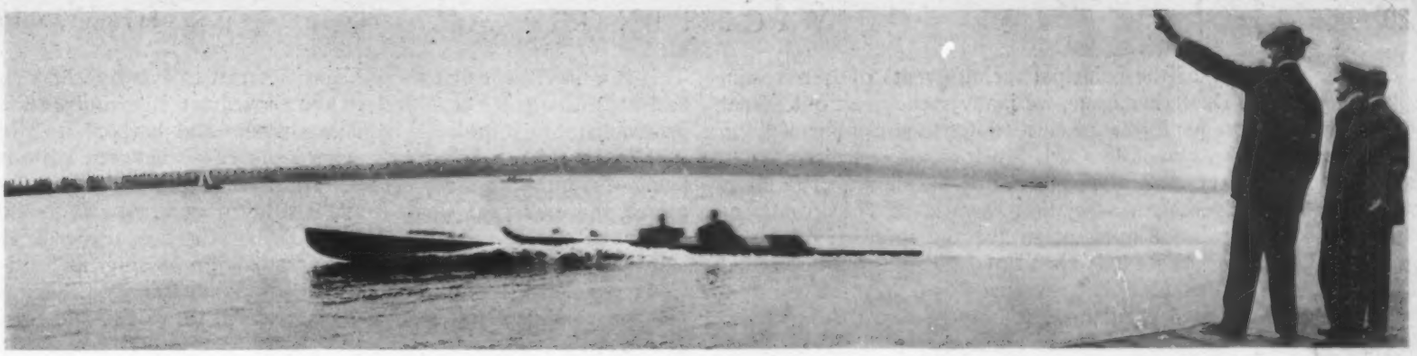
In 1900 the White Bear Yacht Club, of Minnesota, sent Minnesota against the St. Lawrence defender, Redcoat; but without success. In 1901 yachtsmen from the Isle of Wight met with no better success. In 1902 the Bridgeport Yacht Club took Tecumseh to Canada; but Trident, the defender, prevailed. I saw the trial races held off Black Rock, Bridgeport, which resulted in the selection of Tecumseh as the challenger for the cup. There were more than a score of boats, and such a collection of "sidewalks" was never gathered anywhere outside of the inland lakes. When they got down to their sailing lines men were lying along the keels, and after a race they were taken ashore and set up to dry like so many washboards. But they made time all right! In 1903 the Manchester Yacht Club made its first try for the trophy and failed, as did the White Bear Yacht Club on its second attempt the following year. In 1905 the Manchester Yacht Club made another attempt to bring the prize to this country and succeeded. It has remained here, without contest, ever since.

Here is a pleasant and, we may say, discerning, little "thought," culled bodily from a California newspaper, in regard to that genial and wily Baronet, Sir "Tom," as they speak of him westward of Chicago:

"Sir Thomas manages to keep himself in the limelight as the prospective challenger for the American (sic) Cup, and at the same time escape the responsibilities of an actual challenge. The sporting baronet had to inform the stockholders of his corporation at an annual meeting that the cost of the three Shamrocks which had competed unsuccessfully for the international yachting trophy had been charged up against the advertising account of the corporation, and he maintained the advertising had been very profitable. He is now getting a lot of advertising without spending a 'sou markee' for yacht building, and inasmuch as he says it is now too late to challenge for 1910, he will delay it until 1911. That assures Lipton a free world-wide 'ad' for a whole year."

As for Lipton, he has done one very ingenious thing, if nothing else. He has made a certain clique of men "higher up," who sit with fingers tightly locked about the cup, extremely irritable. The fact that they cannot "bear" his tea or other stock, or sell him

MANCHESTER, THE SLOOP THAT BROUGHT THE SEAWANHAKA CUP BACK TO THE UNITED STATES.



SCRIPPS II, THE FAMOUS SPEED BOAT OF THE DETROIT RIVER. IT IS PROPOSED NEXT SEASON TO FORM RESTRICTED CLASSES, SO THAT THE ORDINARY BOAT WILL NOT HAVE TO MEET SUCH FLYERS AS THIS IN RACING.

short, or visit upon him any of the penalties the fear of which keeps the mouths of many New York Yacht Club members shut, places Sir Thomas in a very complacent situation. No thinking person, I dare say, now really believes that the "sporting baronet" ever intends to race for the cup again; so let us smile with him while he has his fun and his free "ads."

Canadians were deeply interested over the suggestion that a challenger be built in the Dominion. No one here seemed to know whether the plan was feasible or not. For the benefit of such I can state that the plan is eminently practicable. In St. John, N. B., there are many sites for a shipyard, although the material would have to be imported. At Yarmouth there are many grass-grown shipyards where the largest vessels could be built, and at Shelburne, also in Nova Scotia, there is not only a dockyard, with workmen active therein, but a dry dock. At New Glasgow, also, there are facilities for the construction of steel vessels. In fact, far from being an impracticable solution to the problem of bringing a challenger across the Atlantic, Canadian shipbuilding facilities offer abundant opportunities in this direction.

The election of Dr. William L. Baum as Commodore of the Chicago Yacht Club is a matter upon which Western yachtsmen, whatever their club affiliations, should congratulate themselves. With advanced ideas as to the position which Chicago and Lake Michigan should hold in the yachting annals of the country, he has been a prominent figure for some years. His purchase of the Cary Smith-designed schooner Amorita last year, bringing, as it did, to Lake Michigan the largest and finest schooner on the Great Lakes, and, boat for boat, the swiftest, bespeaks the sort of man he is; and his entrance in the Bermuda race, to the end that he might carry a salt-water prize to fresh water, was an act nothing if not sportsmanlike. He has never begrudged the victory of Valmore, sailed by that sterling Corinthian, William Hale Thompson, in last year's Mackinac race, and will be at the line in 1910, filled with determination and with a fine boat beneath his feet.

While on the subject of commodores, we beg to announce that "Tom" Webb has been chosen to continue his successful career as head of the Illinois Valley Yacht Club. Well-known in motorboat circles throughout the Middle West, he has done much to bring the Ivy Club into a position of prominence in power-boat affairs. More power to his elbow!

So another of the 70-foot sloops is to go—Mineola this time. William Ross Proctor, her owner, who last raced her in 1905, has sold the single-sticker to a junk firm, which has already started the work of stripping her of her lead keel and other valuable metal at City Island. Well, Mr. Proctor, you are rid of at least one burden. You will not, next season, have to answer questions as to whether you intend to put the sloop into commission or not. In a way, it seems too bad for a boat so young, and so famous withal, to end her days in this scurvy fashion. Time was when Mineola, then owned by August Belmont and sailed by Captain "Bob" Wringe, was the cock of the walk. Parker sailed Cornelius Vanderbilt's Rainbow—Rinebow, Wringe called her—and the way those two imported skippers used to knife each other was enough to send your heart into your throat. You never could tell whether one or both would ever come back from a race. Rainbow at the present time is an empty hull, although I understand the intention is to make a houseboat out of her. Virginia is a houseboat, and Yankee, last owned by Harry Maxwell, will probably be similarly converted.

As to the "seventies," here is an opinion I once obtained from an expert yachtsman concerning them: "The class is a most wonderful piece of engineering. How they stayed together the Lord only knows. The inside plank was cedar, the outside was yellow pine, narrow, dry, beautifully fitted, no caulking. When they were put overboard for the first time three tugs with syphons were required to keep them afloat. When the main sheets were trimmed in the sterns were pulled part way to meet the boom. Such boats have done more harm to yachting than any combination of circumstances ever imagined." A fine character this! But he was a man who knew whereof he spoke—or should have known.

Eugene Higgins' steam yacht Varuna, which went ashore on the northwest coast of Funchal, in the Madeira Islands, last November, will probably be a total loss. She was on her twenty-eighth trip across the Atlantic. A dispatch to the newspapers says that Mr. Higgins paid $5,000 to the man who pulled him out of the water. This would indicate that the yachting party did not have the easy time that first reports indicated. The whole story no doubt will be a distinct addition to yachting literature.

At a meeting held in New York recently at the call of the National Power Boat Association, the question of promoting a number of restricted classes for power boats was discussed, and a committee was finally appointed to draft new racing rules providing for such classes next year. This committee has already held a meeting and considered the formation of restricted classes of 22 feet, 26 feet, 32 feet and 36 feet, and it is expected before long that they will have their recommendations ready. The formation of such classes would undoubtedly be a good thing for the sport of motor-boat racing, and, consequently, of the motor-boat industry. Men of moderate means hesitate to enter open-class races against such fliers as Dixie, Scripps II, Hoosier Boy, La Truda, and others that might be mentioned. They cannot afford to build to these classes with the assurance that they will be outbuilt in a season or two.

The formation of classes such as mentioned, with reasonable restrictions as to power, etc., but leaving design and make to the judgment of designer and builder, would induce many to enter the game with new boats or with boats already built, and with a reasonable chance of success. Classes could be chosen as befitted the pocketbook, and the question of handicapping, now such a sore point, would be largely settled. In no sense, however, should they be one-design classes, but merely restricted as to length, maximum power or volume of engine, and possibly beam.

In our summary of the principal racing events of last season, published in our December issue, we inadvertently left out a boat in one event whose performance entitled her to a prominent place. This was Grayling, owned by O. J. Mulford, of Detroit.

This boat won the championship race of the class C cruisers at the Inter-Lake Yachting Association Regatta at Toledo on August 27, covering the 18 miles at an average speed of over 13.5 miles and finishing 40 seconds ahead of L. E. R., Jr., her actual time being 1:18:20. Grayling measures 65.6 over all by 11.6 beam, and is equipped with three 40-horsepower, three-cylinder Gray motors, 5¾ x 5, a total of 120 horsepower. This should be added to the tables for future reference.

There was held in Washington in the fore part of December the sixth convention of the National Rivers and Harbors Congress. This is a movement that should be of interest to every yachtsman and boat-owner. The object of the movement is to induce the government to improve navigable streams and harbors, to dig canals and furnish unexposed water connections between various parts of the country, and while primarily in the interest of commerce, this policy, if carried out, will be of great benefit to the owners of pleasure boats, and especially launches. The direct result hoped for from this convention was the impressing upon this Congress of the need of a large appropriation to carry on this important work successfully. It is a movement to which all yachtsmen should lend their support. Anything that will keep alive the maritime commerce between different parts of our country and safeguard our navigable rivers is a good thing. We wish the movement success.

A. Cary Smith—An Autobiography

"He holds him with his skinny hand.
'There was a ship,' quoth he;
'Hold off! Unhand me, grey beard loon!'
Eft-soon his hand dropped he."
—Rhyme of the Ancient Mariner.

OLIVER WENDELL HOLMES once remarked that the education of a child should begin 200 years before he was born. The subject of this sketch has done the best he could in this regard, being named after Archibald Cary, who was born in 1730, a descendant of Henry, Lord Hunsdon, and a leading man in the State of Virginia until his death.

Like Harriman, Grover Cleveland and Mr. James J. Jeffries, he is the son of a clergyman, the Rev. Edward Dunlap Smith, D.D., of Pennsylvania and New York, his mother being Jane Blair Cary, of Virginia. He is thus connected with the Fairfaxes, etc., and is distinguished as being the first of this long lineage to do anything with his hands. His grandparents on his mother's side were Wilson Jefferson Cary and Virginia Randolph. They were married from Jefferson's house,, and there is an enameled watch in the family presented by Jefferson, badly scratched by a curious family nigger—so there!

His father was no mollycoddle. He was a great pedestrian, and believed in the wood pile as an adjunct to theology, and was a good hand with firearms. In his early manhood he had taken a ride down to Georgia from Philadelphia, and rode with two good ounce-ball pistols in the holsters, as befitted a gentleman of that day. While in the South he saw Chief Black Hawk, at a trader's place, take five tandem tin cups of beer without the slightest display of emotion, and when the trader shook his head at the outstretched hand of the noble red man for the sixth cup, the Chief wrapped his blanket around him and strode away, like Cooper's most celebrated Indians, soliloquizing thusly: "The firewater is as the dew in the morning, when the sun drinketh it up, and it is not!"

The grandfather, on the father's side, was a well-to-do iron master of Pennsylvania; but in his youth was a junior member of a wholesale grocery company, and, as supercargo, made a number of voyages to the West Indies, and was known as a famous boat sailor.

The subject of this sketch has often wondered where he got his taste for a simple life and the craze for boats, art and shooting. Thé people on his father's side were all well-to-do, prim and pious. One lived in a marble house with marble lions on each side of the entrance and muses painted along the hall, with a fresco of Aurora—it was painted on a big ceiling, and you had to lie down to see it. There was, also, a marble monolithic bath tub that makes cold shivers run up the back of the gentleman in question even at this late day. It must have weighed a ton, more or less.

A cousin on the father's side, who lost his family in Louisiana in a cyclone flood, spent some time wandering about, mainly on the packet ships of that day, and traced the lineage of the family back to Wales, where, in an old churchyard, were buried generations, whose main distinction to fame was that acquired by always paying their debts. But, sad to say, the last coat-of-arms had some sort of a fish, oars and weapons, evidently from a career of the sea, which, at that time, corresponded to the present Trust, well defined by a child who wanted to be a lawyer, who, when asked why, said, "'Cause I kin git other people's money an' they can't git mine!"

At the age of eight years young Cary began to make models and put paper sails on them, and sailed them in the gutter in front of his father's house. Those were days before the Croton water was laid in that street. Water for drinking purposes was obtained from a pump across the way from the house, while a large cistern—where the boy fished, but, strange to say, caught nothing—supplied the household. His plan was to build a dam of mud, and then, by means of relays of boys, pump enough water to sail the boats on. The first time the boat with the paper sail went the length of the course was the proudest moment of that boy's life. Later on, his father took him over to the East River, where ships were built, and, as he grew older, took him to see the yacht America, then in course of construction. At this time there was a model club in Hoboken, composed of boys, and a model boat was made after the lines of the America that was sailed in the cove, back of Hoboken, and beat all comers. Where is that cove now?

There was also a boat made after the sloop Silvie, that was being built at the same time as the America. This also sailed very fast. One chilly day while the boy was over near Hoboken trying a model, the sloop Maria came up the river, followed closely by the America. Shortly after this trial the latter went to England. The rest of her career is written in enduring bronze—a triumph of American skill that will never be forgotten.

Later on an occurrence decided the future life of this boy. He took a sail with a boy friend down to what is now Bayonne, where the late "Bob" Fish had a boat shop. The beauty of the place on the shore of the bay, the smell of the cedar, and the many boats being built, sank deep into his subconsciousness, and he made up his mind that building boats was the work he most liked. He had just passed his examinations for college, and some decision must be arrived at quickly. It did not take him long to make

up his mind to the boat building. His father paid his board, so that he could be free, to a certain extent, and learn all about the business. He worked at this for several years, and fitted out all the boats, rigged and sailed them; under the eye of boss "Bob," who took him under his wing and taught him many a wrinkle about sailing that was put to good use later on.

Here he learned the mysteries and miseries of boat building—the mystery, to a novice, of taking spiling for a difficult strake of plank; the misery of lying on his back during a hot day planing the bottom of a boat planked with yellow pine; the tortures of working all day in winter, when a nail would freeze fast to the hand in a second, and working outside with a fine spring south wind blowing, clad in three or four flannel shirts.

It is not to be supposed that the young man met with a cordial welcome from all the men and boys in the shop—he had many tricks played on him; but he learned that a few picturesque words, aided by a hammer held close to the face of a joker, had a soothing effect. And one night when he was out in a boat that was used by the boys—part of an outfit built to go to Florida to chase Injuns, and called the "Bummer's Own"—there came up a squall; and the way he brought the boat home so charmed the crowd that, when once on terra firma, "Three cheers for the Captain!" rang out. After that his ministrations to some of the boys when sick so won the affection of the gang that in one case it was oppressive. When rounding the Comet up to the dock his cap was knocked off by the boom, and one of the men wanted to jump overboard to get it, and cried when he was restrained. It is but fair to add that he had been taking what was in that day called "jig water."

A. CARY SMITH, FROM A RECENT PHOTOGRAPH.

On one occasion he went down to the Shrewsbury and planked up a boat for a gunsmith, who had started to build it himself, but, on coming to the planking, required the services of an expert. The same went down alone in his boat and staid there six weeks. He boarded at a house where he was much liked by the natives, the fair sex saying that he "was so ladylike in his ways"! But one fine lady from New York—she made artificial flowers—when she saw him coming home with his sleeves rolled up and his coat on his arm, was much exercised, sniffed, and made remarks.

While there he sailed his boat in a race, though he wisely engaged a local boat sailor who knew the river. The little boat won by 8 feet. The wind was strong on the last tack, and the big boat—26 feet—came up on the little 16-footer like a greyhound on a rabbit, and the sight of that crowd laying out to windward, with their eyes sticking out like crabs' eyes, was a sight never to be forgotten. When the young yacht-owner stepped out on the float he was acclaimed with three cheers, given by a lot of women. Reader, did you ever hear a hen try to crow? He was hardened to the hoarse roar of the male; but when some, as Byron sang of Conrad the Corsair, could "scarce a rude embrace refrain," you could have knocked him down with the butt of a musket.

Strange is the female! On one occasion, when this boat-builder had turned first in a great race, one of them told the victor: "If I could have reached you I would have kissed you"! Fortunately, a steamboat cannot be perilously near a big sloop turning a mark.

About this time Mr. W. W. Bates gave him instruction in draughting and laying down vessels. Shortly after the "boss" allowed the boy to build a boat for his own use. This boat was 16 feet long and turned out to be very fast; and, later on, when the boy opened a shop for himself, he met the "boss" with this boat and defeated him in a match race that attracted great attention. This boat was sailed night and day, and the boy soon began to feel that sublime faith in himself without which mountains cannot be moved.

Shortly after this the sailboat Comet was built, and stood the trial for years before she was beaten. She never was beaten by a boat of her own size, and in all her matches, when owned by the boy, he sailed her himself. The captain of the Maria was mainsheet-man—genial "Gus" Morrell—who put aside his dignity as captain of the largest yacht to sail with this boy. After the Comet came out the man, as we may now term him, began a career as a boat sailor, and he met and vanquished all the professionals. Naturally, all said that he could not sail a boat, but that the boat was so much faster than the others, etc. The custom of the man was to ask sweetly, "Who built the boat?"

To show to what lengths prejudice against a boat can go, the following instance is given: Ten years after the Comet was built a rival builder met a Comet man. There was to be a match race that day. Builder (loquitur): "I never could make out what you see in that Comet; there's nothing smart about her."

"I have always backed her and won lots of money on her, and will bet on her to-day," was the reply. The Comet won by 15 minutes.

Five years after that date a copy of the same Comet, built to 24 feet long, raced at Oyster Bay and won by 16 minutes over the next boat and 40 minutes over the second boat. The subject of this sketch sailed her, and as he passed the starting line, a veteran remarked, as he looked at him, "That's a damn nice-looking Corinthian!"

At another race he was taken for a clam man, because he wore a beard and was sunburnt and had on a checked flannel jumper. Not a "de regle" costume for that day and club, "don'tcherknow." The very polite young gentleman who made this error came to the conclusion that he must be a clam man from the way the boat was sailed. If some one could only have taken a snap shot when the owner of the boat slapped the clam man on the back and said, "This is Mr. A. Cary Smith"!

"Weally! this was a vewy disagweable incident, don'tcherknow!"

The very polite young man hauled his jib to windward, slacked his main sheet, and made his get-a-way without P-P-C-ing anybody.

About 1862 he and his former boss sailed two Maria models for the late Commodore Stevens, of Hoboken. It may be well to say a few words about these models. The intention was to alter the sloop Maria into a schooner, and one model was like the sloop, while the other had all the intended alterations of keel and ballast. They were both about 28 feet long, in order to have them large enough for a man to sit aft and handle the gear.

The sails were alike, but one suit was fitted with thin cedar slats from leach to mast, three in number, fitted in pockets, so as to offer no obstruction to the wind. Great attention was paid to windage on the Maria. The mast was carried out on the after side until it left a place for tracks to be fitted in a groove, so that when on the wind the mast was a part of the sail. The after side of the mast was about 5 inches wide. Where the gaff would come on the mast, when the sail was reefed, the mast was round, to take the jaws of the gaff. The sails were "cross cut," the same method that is used on racing vessels of to-day.

The shrouds were set up with rigging screws, while the bowsprit was below the deck line, and the bulwarks were merely stanchions with a rope netting, like a steamboat. The boom was hollow, built up of long deck plank with moulds inside to keep the shape, and with chocks, driven in the seams, at stated intervals, to keep the plank from moving, the whole being hooped with iron. There was nothing conventional or old-"sailorified" about Maria. Her owner was a most progressive man, and wanted the newest ideas in his boat. The angle where the garboard met the keel was filled with lead, cast to fit, and coppered over. The draught at the stem was not more than 3 feet, and when she took a hard flaw the bow would come out of the water many feet, showing that she did not go by the head, as boats even now are so apt to do. When they do it is fatal.

The result of many trials proved that in light winds the boat without the slats in her sails would beat the other one very badly to windward, while when the wind was strong the boat with the slats in her sails reversed this verdict in an astonishing manner.

So much for yacht-designing. The sails in this case counted more than the shape of the boat. And it may be added that the boat with the slats in her sail could carry her canvas with ease when the other had more wind than she wanted, or appeared to have, at least. More nuts to be cracked by men who put faith in calculated stability, as set forth in books on that subject!

Many trials and experiments were made with these models that have been very useful to the man in after life. And these trials brought out the fact that the mainsail of a schooner must be trimmed very flat and the other sails gradually eased up, with the jib at the widest angle. This experiment, carried out on Sappho by "Bob" Fish while in England, redeemed the credit of America, then in eclipse. This method of sailing was laughed at by the "London Field," but in the end Sappho laughed last, and the last exhibition of risibility is much prized among yachtsmen. When Cambria was sailing for America's Cup, Sappho appeared, and was awarded the most noisy welcome—screams of whistles, roars of cheers.

This way of trimming a schooner is in use to-day. The main sheet is flattened by hand and then a powerful purchase is applied to the sheet until the mainsail stands like a board—then the properly modeled schooner will lay as near to the wind as a sloop.

Some time after this, when the builder and designer began to sail larger boats that belonged to the N. Y. Y. C., the question was raised if he was really an amateur, and words ran high on that subject, one official of the club saying that "it was no work for a gentleman." Acting on the advice of friends, he gave up sailing, to learn later, like the fable of the old man and the ass, that his work was for gentlemen, and that it was considered a great accomplishment. How customs change!

A racing incident that happened about this time may be worth relating. The old Madcap was sailing against Active, and as they approached the S. W. Spit, with Active coming up fast, the man who was on Madcap hailed and called for room at the mark. He was aware that Active was a hard steerer. The force of the hail made the steersman slack the wheel, and in a trice Madcap jibed her mainsail so as to put the boom over the hull of the Active and kept it there. Active kept well off in the tide, to get out from under the mainsail of Madcap, lost her place, and could not regain it. Madcap won, and the Active people were disgusted that they had been made the victim of such a palpable trick. But there is no politeness in racing—it is like love and war.

On another occasion he was sailing a boat at Oyster Bay against a boat with a professional crew. He had followed the latter closely all the way down the wind, and when they hauled the wind the tension became too great, and the professional crew began to look behind them. At last one man got up and pushed the jaws of the boom down. These were signs of nervousness. When the boats were close together the stern boat went about and met the other boat on the opposite tack. One glance under the boom told the steersman when to put the helm down slowly and place his boat just under the lee bow of the other boat. The weather boat's bowsprit bobbed up and down—passed nearly up to the middle of the boat; a slight touch of the helm on the lee boat made the other boat's jib back, and astern she went. After that they could do nothing. When the race was over the captain of the loser said: "That feller don't no nawthin' about sailin' a boat; the idea of follerin' a boat that way!" But when his passion had cooled he confided to a friend that the other "knowed he had us." That belief was shared by the "amachoor" who sailed against the baymen.

Later on in life the boat sailor became an artist under the care of the late M. F. H. de Haas, and made a specialty of paintings of yachts. He was laughed at by artists. The boats looked too much like boats, and the water like water, which was not artistic. This went on for years and the boat-sailing devil was apparently cast out. But when the paint was in full swing, and pictures painted for magnates were hung in a noted Broadway picture store, and the place was thronged with yachtsmen, a friend came from Paris—the late Robert Center—and wanted to build a yacht. The end came; the Vindex was designed and held up to public scorn. She was made of iron, was a keel boat, had the mast well aft, and was rigged with forestaysail and jib, had a long housing topmast, had runners to hold the mast back, had quarter lifts, was ballasted with lead, had chain halyards for the jib (this sail was set flying), and had a great big club topsail. All of these things were laughed at, and the boat was known as "the pot" or "the tank," while the designer was held up to ridicule as a self-styled naval architect, theorist, paper designer, etc.

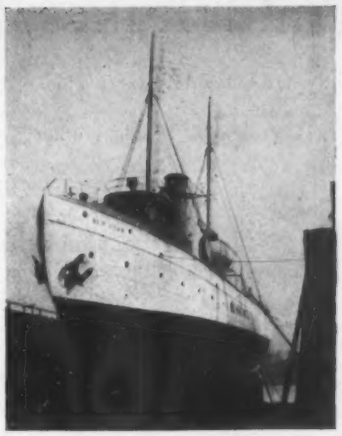
But one day there was an east wind in the Sound, and it blew all day and all night, and only three boats reached New London—Idler, Rambler and Vindex. Another famous day was from Cottage City to Gloucester. The wind came ahead after clearing Pollock Rip, with a long swell. The schooner Dreadnought, 118 feet L. W. L., had run Vindex hull down, with a leading wind. Off Nausett Beacons, about midday, Vindex was under single-reef mainsail, full forestaysail, No. 2 jib, and topmast housed, Dreadnought being dead ahead, hull down. Just before dark Vindex passed to windward and left the big fellow and other schooners. Vindex was about 56 feet L. W. L.

This sail opened the eyes of yachtsmen. Dreadnought, in a club-topsail breeze and smooth water, was a fast schooner; but with a sea large enough to lift her and let her long, lean bow dig into it, she was helpless. Vindex was built in 1872 at the yard of Rainey & Archibold, Chester, Pa. In the next yard was built the famous schooner Columbia, which figured afterwards in many famous races.

In the early days the designer and artist was one of the crew of White Cap, then owned by Mr. Ludlow Livingston, and, later on, of Vixen. The late Mr. Joseph Busk was also one of the crew, and a friendship grew up between the two "amachoors," later on to be followed by an order for Madcap. There was a model made for this boat by the builder of Vixen, and this model was handed over to the tender mercies of the man who made the Comet. The deep forefoot was cut away. The lateral resistance was arrived at, many changes were made in the lines, and a large

sail plan designed. The late Than 'Clock was in charge, and three days after the sails were bent she won three times in succession. The old sandbag idea was carried out—plenty of sail and plenty of lead. After a long and successful career she was sold to Boston, and is now at Greenport as a working boat.

Some time after this Mischief was designed for Mr. Busk. She was built of iron and launched off a dock by the big crane at Harlan & Hollingsworth's yard, Wilmington, Del. She was slung with 3-inch rope on the big hook of the crane block, lifted up and set in the water. She weighed 27 tons. Mischief repeated the feat of the Madcap, winning three days in succession, and at once was placed in that dread light that shines on a fast boat. Mr. Busk was no friend of reporters, and a vendetta was carried out for years. At last, to the disgust of many, she was chosen for the defense of the America's Cup, and won from the sloop Atalanta by a large margin.



STEAM PILOT BOAT NEW YORK, DESIGNED BY CARY SMITH FOR THE SANDY HOOK PILOTS. SHE HAS NEVER BEEN FORCED IN BY STRESS OF WEATHER.

The chief factor in the opportunity of showing what could be done in the designing of steamboats was Chester W. Chapin, Esq. The Whim was built for him in 1885. She was a very light-draught schooner, with a small rig, for Florida, and proved a great success. Then followed an order for Julia, now Iroquois. After this followed the Yampa, now Iduna, owned by Her Majesty the German Empress. Next came an order for the steamboat Richard Peck, designed upon the same formula for curve of displacement as Iroquois, Yampa, etc. This idea was much laughed at by builders and engineers. But the mere mention of the fact that she made a mile at the rate of 20 mlies an hour with 250 tons of coal on deck, in 30 feet of water, and afterward beat the famous Puritan, will suffice.

For the information of "tenderfeet" who tread the thorny path of naval architecture, and to explain how to design a steamboat when you don't know how, it may be said that this operation of preparing the mind of the yacht designer to design a steamboat took nearly three years. The president of the company wanted a new steamboat. The old C. H. Northam was the ideal boat in the eyes of the conservative people that grow on old steamboat companies like corns—and, by the way, are equally useful. The designer, when spoken to, said he knew nothing about steamboats. In Esperanto, "he didn't know no more about a steamboat than a steamboat knowed about him." Still, the president adhered to his purpose. Finally, the Northam was on the dock, and the designer was told to get a gang, measure her, make a plan of her, and charge to the company—which he did.

Then a displacement curve was made and compared with that of the Yampa, and the designer informed the president that the Northam—the "nonpareil"—was N. G. Then orders were given to make a plan for a 300-foot steamboat. The designer went, with Mr. Frank Soop, engineer, on board of a number of steamboats and inspected them. To show how difficult it is to arrive at the truth, they asked the chief on one steamboat: "How do you like those pumps?" "First-rate; never have a bit of trouble." On another boat, same line, same pumps, same question—reply, "Ain't wuth a d——n!" Then saw pilot and asked a lot of questions. Put 'em down in book. "Floor level with water. Don't get so tired." The tendon Achilles needlessly extended, if with sheer. Saw mate: "How do you like coal fixin's?" Told all about it—put in book. Saw the cook, and found out all about galley, dumb waiter, ice box—put in book. Also, furniture, tables, carpets, ladies' saloon, fireroom, bunkers, steering engine, electric lights, staterooms, etc. While on the dock the men familiar with the steamboat marked the light and loaded waterline, thus giving a close approximation of the freight carried, including the knives and forks, which utensils make boats go below the designed line. Then went to work.

The designer and artist at that time was a woolen crank, believing in all thirty-nine articles; but, like some students, balked at woolen cigars, on account of the uncanny smell. When a boy, he was at the house of his uncle, and, the family being away, he was alone in the house, barrin' a lot of maids, and had to dress himself. At that period he wore a jacket buttoned to pants. There were under things, too. He discarded the under things, and all he had to do was to jump into the pants, put on the jacket, button up—Voila! This is merely mentioned to show what a genius for simplicity this boy had.

Pardon the digression, but the feller this is writ for said he didn't care a cuss how much stuff there was—the more the better. Well, five plans were made to get the formula of the Yampa to fit, and the boat was to be 48 feet wide, an unheard-of beam at that period; but the last plan looked good. Previous to this, the designer had obtained the lines of a fast scow that carried cars—the fastest boat for the power that had been built by a certain firm. Some folks never learn anything, but the formula applied to the lines of that scow fitted near enough to confirm the method.

By the way, this formula must be credited to Mr. John Hyslop, a man of varied attainments, and who has designed some wonderful boats, both here and in Bermuda. The formula has been tried on many yachts, with the result that the best of the old boats and the latest racers agree very closely, though the form may differ radically. It fits the Comet as well as the famous Sappho, and, carried out on the City of Lowell, produced a form that can go at the rate of 22.2 knots with less wave-making than any boat produced since that time. If, as John B. Griffith tells us in his work on naval architecture, "the wave is the index of the form," there must be many badly formed boats about New York. Passengers on Staten Island ferryboats know them from sad experience and wet feet.

Then a steamboat specification was obtained, the language changed and more stuff put in. After many free-hand sketches were made of the construction—here's where the artist came in—the proper method was evolved, which was to have a flat plate keel—center plate, keelson plates (27 feet long), and two sister, long-plate keelsons, as far as they could be worked, fore and aft. This method of cutting the floors up and really making them intercostal was the laughing-stock of the shipyard. Then came the question of boilers. The designer said six—the builder said four was ample. The reply was, said slowly, with eye like a gimlet fixed on the president, with a headlight in his shirt front: "I am authorized to say six." (P. S.—If we had put in four, the Puritan would have beaten the Peck easily, and the name of the designer—"Mud"!)

The next thing was to get an engineer who would get the speed—if there was any—out of the boat. The managing engineer produced Samuel Sault—weighing 260 pounds, and with an eye that told what he could do. When the Peck had made the trial trip, the president said: "You are a fortunate man; you make a steamboat that has practically no vibration, while we have never done it." This is where the long plate keelsons came in—the laughing-stock of the shipyard. One foreman remarked: "You won't find a man in any yard to agree with you." What shipyards don't know about construction would fill a Carnegie

(Continued on page 81.)

The Inland Lakes Regatta

By ORLO BARTHOLOMEW

Photographs by the Author

TOMAHAWK.

LAKE WINNEBAGO, a 40-mile stretch of water in Wisconsin northwest of Milwaukee, was again the scene of the Inland Lakes Regatta after an absence of a year, when it was sailed on Lake Minnetonka. Four races decided this championship of the Middle West, the entries including boats from the principal yacht clubs of Minnesota, Wisconsin and Chicago. On the Inland Lake the scow type is now really the only racer to be found, as the sharp-nosed boat cannot keep up with the fleet except in a heavy sea, when boats with a broad bow are not quite so fast.

Winnebago was in a placid mood during the week of the regatta and one of the five races had to be called off. The lake is about 40 miles long and 12 miles wide, but averages only 15 feet in depth; and with a good wind there is naturally an exceptionally high sea, but only once during the regatta did the boats have anything of the kind to contend with, as the majority of the races were sailed in light and somewhat fluky winds, excepting those of Thursday and Friday. On the morning of the latter day it blew so hard that the Class B crews had all they could do to keep their boats right side up, but the breeze was much lighter for the "A" sloops in the afternoon.

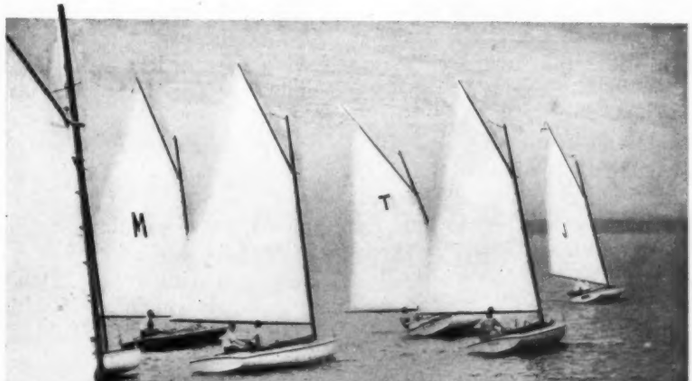
The honors were very evenly divided this year among the different localities, Minnetonka and White Bear sloops giving way to the Oshkosh boats in Class A, though winning among the "half-raters," while in Class C the Oconomowoc entry was the champion. Kathryn, of Lake Butte des Morts, fought her way to the Class A championship, while Margaret L., of Minnetonka, and Lemon, of Oconomowoc, won in Classes B and C, respectively. In Class A Kathryn took not only the championship of the I. L. Y. A., but also won the Butte des Morts race and the Felker Cup. In the four Inland Lake races she finished first in only the second race; but as she took second, fifth, and was tied for second place in the other events, she won the series by two and one-half racing points. Mercia, of Oshkosh, was the winner in the final race, but had failed to hold positions near enough to the front in the other three to take the championship. Swastika, of White Bear, was the victor in one race and took third and second honors in two other events, but dropped back to eighth position in the deciding contest, and was only able to take away the third honors. The Minnetonka entry, Tomahawk V, showed up well in the first race, coming in an easy winner, and in the final contest; but as she did not show in the other two races, her hopes for the championship were dashed. Humbug and Amogla had a close fight for fifth honors, Humbug finally winning, while Pats V, Black Point and Siegelinde took seventh, eighth and ninth places in the final tally.

The race at Butte des Morts, a lake on the Fox River a few miles from Oshkosh, brought out some fine sailing in all classes, and especially among the larger sloops. The wind was light, and the 3-knot triangle was sailed around four times, a total of 12 knots. Black Point started out to win, but was passed on the second round by Kathryn and then by Tomahawk. The last of the three legs of the course was a beat to windward, the first being a reach and the second a free run. On the first two legs Kathryn would invariably stretch out her lead, but going to windward Tomahawk would gain. At the start of the windward leg on the last round there was a difference of one minute and twenty-seven seconds between the boats and one knot to be sailed. Tomahawk was favored with a fine slant of wind and shortened Kathryn's lead. On the next tack the boats came together, and for one long board the boats fought for first honors. Time and again one or the other would gain, only to have the gap closed again. Finally, Tomahawk passed Kathryn to leeward and came about with but one more tack to the finish. The skippers had both overshot the finish buoy, however, and the board was almost a beam reach. The wind freshened, only to drop again after a moment or two. Mast-and-mast the sloops neared the line, and as they crossed Kathryn drew ahead, finishing with a lead of eleven seconds.

This race was surpassed in the closeness of the finish by two of the I. L. Y. A. events, Tomahawk again losing first place, this time to Mercia, of Oshkosh, by eight seconds. In the third race the judges could see no difference between Pats V and Kathryn for second place and declared them tied.

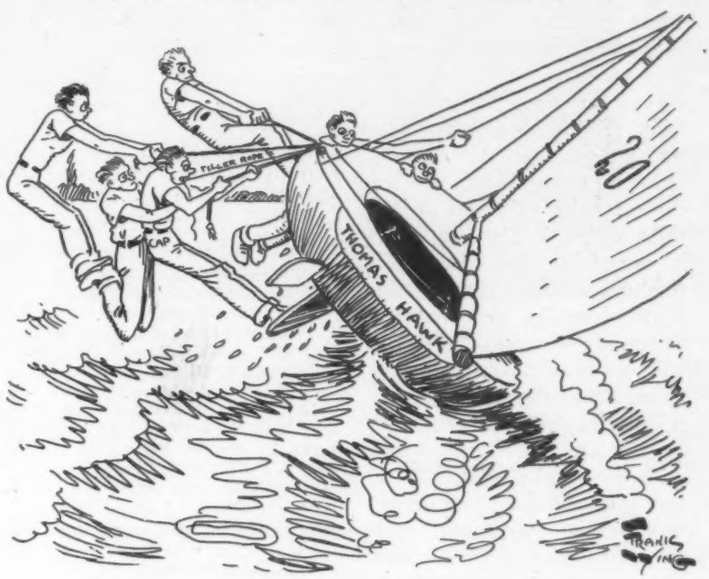
As close racing as is often seen marked the contest between Margaret L., of Minnetonka, and Butterfly, of White Bear, in Class B. Butterfly was Minnetonka's entry in the regatta of 1908, and, skippered by Gene Markoe, was then an easy winner, coming in first in all but one of the races. This year the boat was sold to Stuart Markoe, of White Bear, and entered under the colors of that club. The rivalry between the crews of Margaret L. and Butterfly was, therefore, of the keenest, and both boats were out to win. The first race was taken by the White Bear boat, while in the second Margaret was first, Butterfly taking third position and Allegro second. The third race was won by Margaret L, with Butterfly second. This put the Minnetonka sloop in the lead by two points, and it was necessary to finish in the next position behind Butterfly to win the championship.

The wind was off-shore, and although blowing hard, it was



START OF THE CLASS C CATBOATS. SKIP LEADING.

not very noticeable on the dock, and the Minnetonka boat carried only a three-man crew. The race was to windward and return, and on the second leg, which was a spinnaker run, the boats were well bunched, excepting Butterfly, which had worked out a good lead. At the start of the run Margaret L. passed Prom Girl and was to windward of Twenty-Three, when the Buttes des Morts boat capsized. The same squall which capsized Twenty-Three struck Margaret L., and over she went, with Minnetonka's chances of winning the championship apparently lost. The crew had no idea of giving up, however, and immediately set to work to right their craft. When the squall hit the Minnetonka boat Twenty-Three was directly to leeward, and this prevented Skipper Vandever from running off before the squall and making the best of the extra wind. It was, therefore, necessary to luff, and, as the spinnaker sheet caught on a cleat, a capsize was the result.



A DULL MOMENT IN ONE OF THE INLAND LAKE SCOW RACES.

The windward bilge board had slipped out of position, and it was necessary to replace it before the boat could be righted. This accomplished, however, the remainder of the work was quickly done, and the boat was again sailing with everything set as it was before she went over. Virginia was the first boat to be passed, and it did not take much longer to leave Prom Girl astern. Allegro could still prevent Margaret L. from taking the championship, however, and a tie seemed imminent. Steadily the Minnetonka boat gained, and, after a short luffing match, took the windward position, but did not pass her rival. With only a few feet separating the boats they neared the finish line. Gene Markoe had taken the tiller, and in the last one hundred yards the championship was won, as Margaret L. passed Allegro and held on to the vital second position, as Butterfly was first. This feat was the feature of the regatta, and it will be many years before another crew of three can equal the feat performed by Al. Vandever, Gene Markoe and Harry Newgord.

Among the Class C catboats, Skip, of Minnetonka, won second position from Patsy, of Oshkosh, by only seven seconds in the final race of the regatta. Skip passed and took the lead over Patsy in the last hundred yards, and, as the boats had been tied for second honors at the start of the race, this last contest decided which would take the second prize cup. The first prize was won by the Lemon, of Oconomowoc, a boat of the scow type which is prohibited by the restrictions among the catboats, although it is allowed in the other two classes. Lemon was the winner in the first and last races and finished second in the other two. Edith and Patsy won one race each; but as Skip had sailed the most consistent race, she was in second place when the points were counted. Halie Reiter was the skipper on Skip, and it is largely due to his sailing that the boat took second honors.

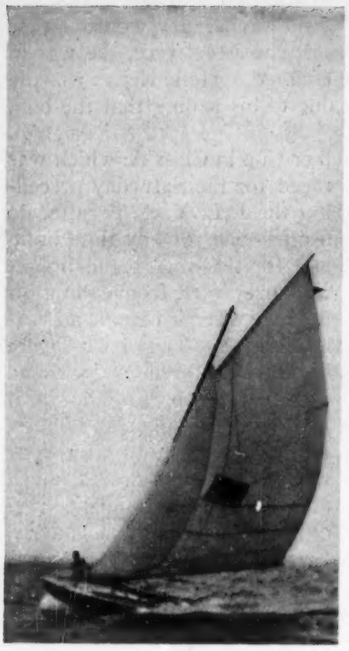
The conditions governing the Felker Cup in Class A, which was raced for the Saturday preceding the I. L. Y. A. regatta, do not provide for any time limit, and for this reason the judges were prevented from calling off the race when it became a drifting match. The boats were started at three o'clock and drifted for over four hours, it taking Kathryn, the winner, four hours and twenty-four minutes to cover the 12 knots, and Mercia, which finished second, twenty minutes more. Swastika was third, and, as there was little chance of the other boats getting in at all, the judges sent launches out to tow them in.

The Class B and C boats sailed the first race in a drift, and it appeared to be the fate of the larger sloops to sail the race with the lightest of breezes in the afternoon. In the Class A race Tomahawk was among those astern and to leeward of the fleet. The little breeze that had been blowing was from the southwest, but before any boat had covered a mile a good wind struck in from the north, and, as Skipper Savage had jibed his sails, Tomahawk was prepared for it and passed the fleet before the wind reached them, finishing with a lead of a little over a minute and thirty seconds, with Kathryn in second position.

In the second race in Class A, the wind was very unsteady, and shifted continually. The course was to windward and return, but soon became two reaching legs with the changing wind. Here, again, Tomahawk was the boat most affected by the changing wind; but this time she did not have as good luck, and dropped from third to sixth position on the last leg.

BUTTERFLY, WINNER OF SECOND PRIZE IN CLASS B.

In the final Class A contest Mercia was the winner. The race was to windward and return, and the Tomahawk soon took the lead, with Mercia second and Humbug third. There was only half a point difference between Swastika and Kathryn at the start, and these boats were fighting it out at every turn. They lost, however, by staying together, Kathryn finishing fifth and Swastika eighth. Both of these boats had been well up in all of the other races, and it was a good example of what happens when skippers attempt to defeat one boat instead of sailing the race



KATHRYN, CHAMPION OF CLASS A, INLAND LAKES YACHTING ASSOCIATION, WITH 29½ POINTS.

against the fleet. With the shifting of the wind the course became two reaching legs, and Mercia took the lead, with Tomahawk second. Black Point had held fourth place during the contest; but when Kathryn had finally shaken off Swastika, she rapidly came to the front and was soon after the Geneva boat. Skipper Dunne was prepared, however, and although the leg was too close for spinnakers, he put up his light sail, but did not break it out from the stops. As Kathryn drew closer, the boats naturally were pointed closer into the wind. As a result, as they neared the finishing buoy they were above it, and, in order to cross the line, it was necessary to sail with the wind abeam. Then the light sail on Black Point was broken loose, and with the extra canvas the Geneva boat got in ahead of Kathryn.

The cups and trophies were as numerous and beautiful as in any year before, and although no records were broken, the races brought out good sailing and the best of sportsmanship prevailed.

The Oshkosh Yacht Club was host for the guests from the different clubs represented, and its officers maintained the usual high standard of hospitality; and they, together with the officers of the I. L. Y. A., are to be congratulated upon the way in which the affair was conducted.

The following table gives the points won by each boat with the various cups and trophies:

CLASS A

Boat and Club	Points
KATHRYN, Butte des Morts Y. C..	29½
Clark-Ordway Cup.	
I. L. Y. A. First Prize.	
Oshkosh Yacht Club, First Prize.	
Felker Trophy Cup.	
Lake Butte des Morts, First Prize.	
Commodore Gilbert Challenge Cup.	
MERCIA, Oshkosh Yacht Club....	27
I. L. Y. A., Second Prize.	
Oshkosh Yacht Club, Second Prize.	
SWASTIKA, White Bear Y. C....	26
TOMAHAWK, Minnetonka Y. C...	24
Lake Butte des Morts 2d Prize.	
HUMBUG, Oconomowoc Lake Club.	21
AMOGLA, Neenah-Nodaway Club..	20
PATS V., Pistakee Yacht Club...	15½
BLACK POINT, Lake Geneva Y. C.	13
SIEGELINDE, Lake Geneva C. C..	4

CLASS B

Boat and Club	Points
MARGARET L., Minnetonka Y. C..	22
I. L. Y. A., First Prize Cup.	
Lake Butte des Morts, Second Prize.	
Oshkosh Yacht Club, First Prize.	

CLASS B—*Continued*

Boat and Club	Points
BUTTERFLY, White Bear Y. C.....	21
Second Prize, I. L. Y. A.; First Prize, Lake Butte des Morts, and Second Prize, Oshkosh Yacht Club.	
ALLEGRO, Duluth Yacht Club.....	16
VIRGINIA, Oshkosh Yacht Club....	11
TWENTY-THREE, Lake Butte des Morts Yacht Club.....	8
PROM GIRL, Mendota Yacht Club..	6

CLASS C

Boat and Club	Points
LEMON, Oconomowoc Lake Club....	14
First Prize, I. L. Y. A.	
Commodore Bray Challenge Cup.	
Lake Butte des Morts, First Prize.	
Oshkosh Y. C., First Prize.	
The Warren Cup.	
SKIP, Minnetonka Yacht Club.....	10
I. L. Y. A., Second Prize.	
Lake Butte des Morts, Second Prize.	
Oshkosh Y. C., Second Prize.	
PATSY, Oshkosh Yacht Club.....	9
EDITH, Lake Butte des Morts Y. C..	7

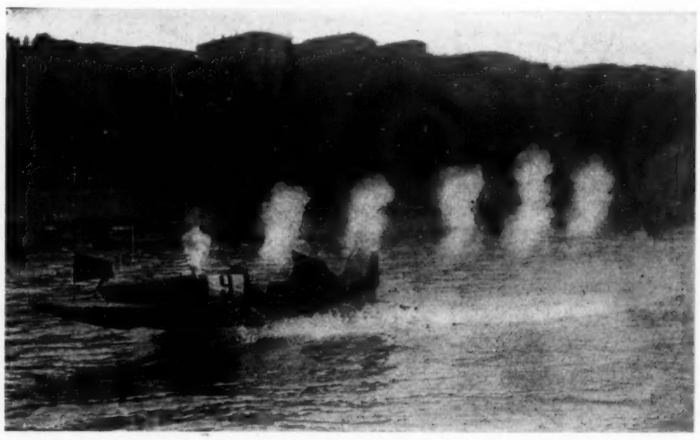
Hydroplanes—Past and Present

By GEORGE ETHELBERT WALSH

GLIDING boats, or hydroplanes, appeared in American waters two summers ago in considerable numbers for both experimental and practical purposes, and the new form of craft—first laughed at when Comte Lambert launched his invention at Monte Carlo nearly three years ago—has apparently worked its way into popular appreciation. The development of the hydroplane has interested yachtsmen anxious to secure the highest possible speed and the theoretical designer who is forever struggling with the problem of skin friction, curves, submersion, waterlines and other technical points of his profession; but aside from the high speed possible under favorable conditions, the great feature of the hydroplane is the comparative cheapness of construction. A gliding boat can be built for very much less than the cost of the regular type, and, when launched, it will be able to put rings around some of the best racers on the water.

In his original hydroplane boat Comte Lambert claimed there were two great principles involved in his invention. One was to get his craft upon the surface of the water, so as to reduce skin friction to the minimum, and the other to do away with the water propellers and to replace them with propellers that would grip the air. It was no new idea to reduce the skin friction of the water. Every skilled designer of yachts has worked on this problem for years. It was well known that the horsepower required to propel an ordinary boat through the water is increased as the cube of the speed, and to double the speed of any boat would, therefore, require eight times the power. The solution of the problem seemed to be in the formation of finer boat lines and the construction of lighter hulls and more powerful machinery in proportion to weight.

Comte de Lambert worked on a different theory, and by his ardent devotion to his ideas evolved the first practical gliding boat. He experimented first with a rude sort of catamaran. A series of hydroplanes was placed transversely across the pontoons of the craft, so they would have a tendency to lift it out of the water when under great speed. With due recognition of the prior claims of other inventors working in this field, it should be noted that, as for back as 1876, M. de Sanderal, of France, worked out a simple hydroplane craft; but he was not successful, owing to the heavy weight of the steam engine required to drive it at the proper speed. In 1895 M. Ader, of Paris, another inventor in this field, built a gliding boat of somewhat similar shape and design; but he added the novel,



RICHOCHET 16, A SMALL FRENCH HYDROPLANE, AT TOP SPEED.

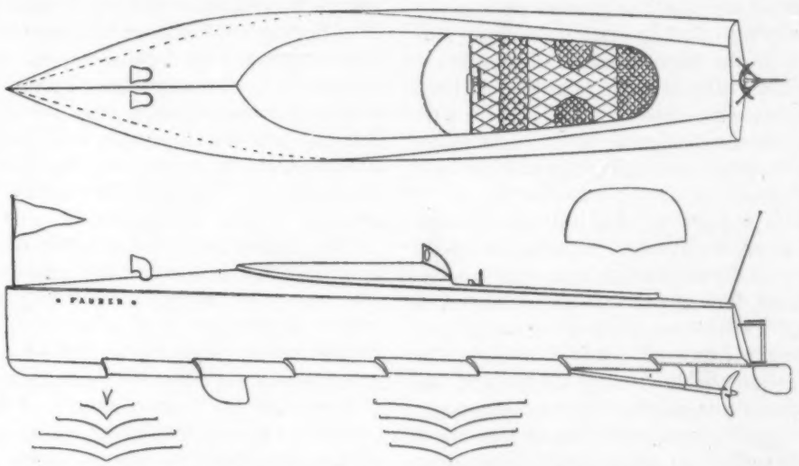
ONE OF COUNT LAMBERT'S LATER HYDROPLANES, DRIVEN BY AN AERIAL PROPELLER.

if somewhat impracticable, idea of injecting compressed air underneath the surface of the three planes. This was to supply an air cushion under the planes to reduce skin friction.

Comte de Lambert built his first gliding boat in 1897. He was working then, like his predecessors with a steam engine, for his power; and while his early experiments indicated success of a certain order, no practical results could have been obtained without the improvements of the gasolene engine. The gliding boat, like the dirigible balloon and airship, owes its recent success as much to the development of the gasolene engine as to any other special feature. Light, powerful engines are as essential for gliding boats as for airships, and the development of these two inventions has thus been almost coextensive. In his early experiments Comte de Lambert obtained a speed of 24 miles per hour with a 12-horsepower gasolene engine. His later craft was equipped with a 50-horsepower engine, but the weight and displacement were so much greater than the original speed of his small gliding boat was not greatly exceeded. But this was all more or less in an experimental way. In a straight line a speed of nearly 35 miles an hour was later obtained on the Seine.

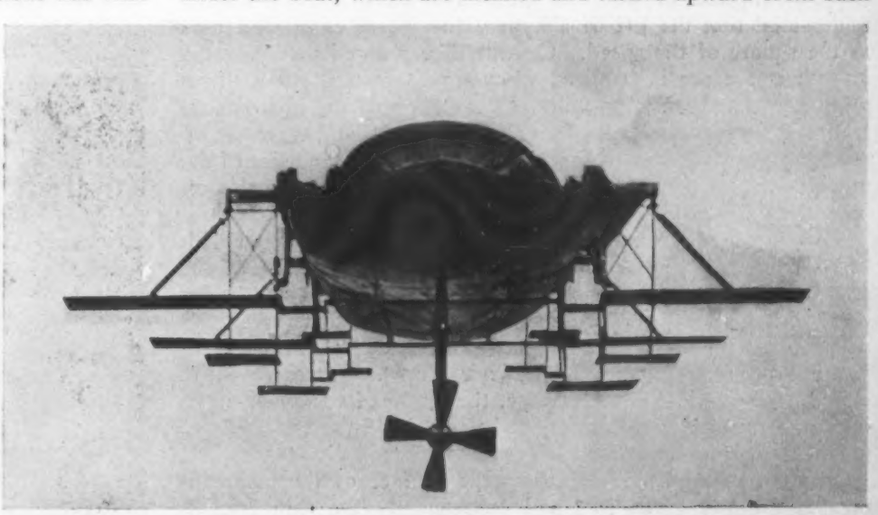
Variations of the early hydroplanes have been tried in this country and in Europe in the past year, and many of our best yacht designers are to-day working on new models. The fact that the principle is understood to be a good one for certain types of boats is sufficient assurance that it will continue to attract pioneers in the field. No less than five different forms of hydroplanes appeared on the Seine year before last, and with most encouraging results. In this country, besides the numerous imitations of the Lambert models, there have been a number of original designs that have attracted considerable attention.

The submerged hydroplane is one of the most recent types, and has created not a little sensation in the yachting world. The Meacham type of submerged hydroplane, worked out some time ago, was claimed to show considerably more efficiency than the surface type. This pioneer invention had hydroplanes arranged on vertical stanchions below the water in such a way as to raise the boat almost completely out of the water. A more perfectly developed model of this type was the invention of Dr. Peter Cooper Hewitt, who, in working on the problems of aerial navigation, came to the conclusion that the same laws govern the action of an aeroplane as a hydroplane. Of course, the chief difference between the two propositions was recognized to be the greater density of water over that of air, a density some 800 times greater. In trying to experiment with some of the perplexing problems of navigating the air, the inventor took to making tests with hydroplanes, and his successful submerged hydroplane craft was the result.

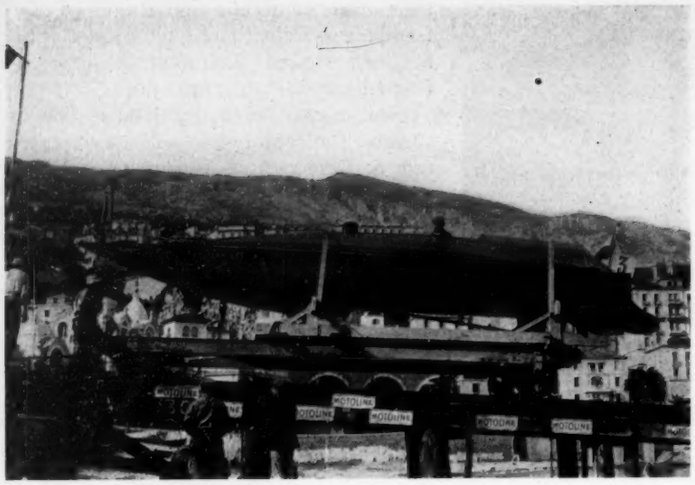


A FAUBER HYDROPLANE, SHOWING HOW THE PRINCIPLE CAN BE APPLIED TO HULLS OF ACCEPTED DESIGN. NOTE CONCAVE SURFACES OF PLANES.

To understand the difference between these two distinct types of hydroplanes the principles governing them need a little elucidation. The chief object of the gliding boat is to make it so light of weight that when driven by light and powerful engines there will be scarcely any immersion of the hull. This is accomplished by a set of planes under the boat, which are inclined and turned upward from back



COOPER HEWITT HYDROPLANE, SHOWING SUBMERGED PLANES PROJECTING FROM THE SIDES BELOW THE HULL.



LA RAPIERE III, A TYPE WITH LARGE PLANES. WHILE THE LIFTING POWER IS GREATER THERE IS MORE FRICTION, AND MEDIUM-SIZED PLANES GIVE BETTER RESULTS.

to front. These planes lift the boat from the water as the speed increases. In the early Lambert models the planes were separate from the boat and carefully adjusted at certain angles. But in the modern craft of this type the plane surfaces are formed by the bottom of the boat. There are at least two, if not three or more, of these plane surfaces underneath the hull. Their lifting power depends entirely upon the designing and construction of the boat in proportion to the planes and the weight of the hull and machinery.

The submerged hydroplane type consists of a hull surrounded by a rectangular framework from the corners of which vertical trussed sheet-steel frames project downward to carry the hydroplanes. These consist of planes like a row of steps connected together by horizontal strips. The planes project outward several feet from the sides of the craft. Now, when in motion, the boat is lifted until it runs only on the lower sets of planes, the upper ones being entirely out of the water. In rough water, heavy waves may strike the upper planes and retard the speed of the craft; but otherwise the boat glides along swiftly and withoue commotion. For this reason this type of boat is not considered suitable for very rough water, or at least it must be designed so that the upper planes can be lifted beyond the reach of the waves.

In working out the plans for either type of boat, it is generally understood that the lift of a hydroplane increases or decreases as the square of the speed. On this theory about three-fourths less plane surface is required when traveling at a speed of 30 miles per hour than at 15 miles. The design of the hydroplanes is almost as elastic as that of an ordinary yacht, and there are no arbitrary rules yet devised for restricting the shape and size of the models. Experiment, rather than theory, must eventually determine the types of hydroplanes of the future.

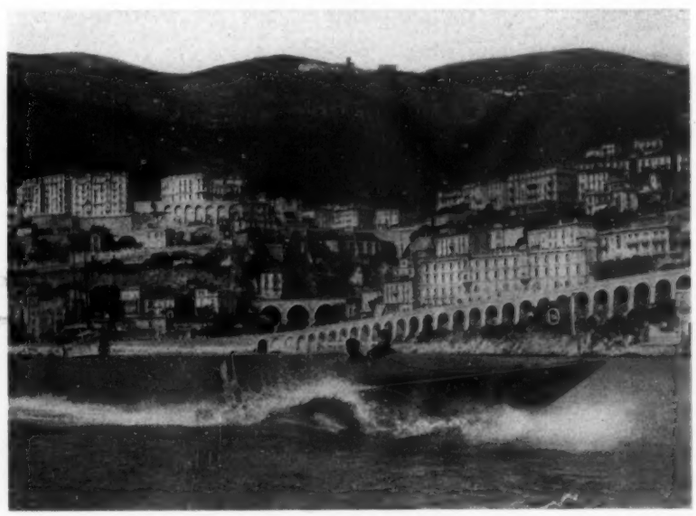
Theoretically, it is known that the lifting power is greater with large planes; but the skin friction increases with the size of the plane surface, and there must be a happy medium somewhere for each craft that will give the best results. In most of the models used to-day moderate-size planes are employed, although investigators are trying nearly all sizes, from the extremely large ones to the very small. Likewise, the angle of the plane is an important feature that has not yet been definitely settled. There must be a certain angle for each craft which will give the highest speed; but as the angle decreases the surface of the plane increases for any given lift, and consequently the skin friction grows proportionately greater. The angle adopted on most of the modern hydroplanes varies between 1 in 8 up to 1 in 20, but the smaller ones seem to produce the best result.

In the Hewitt hydroplane the boat is lifted above the surface of the water at a speed of about 16 miles per hour. A speed of 30 miles has been attained by this craft; it is expected that same modifications of this model will reach an even higher speed. One disadvantage of the Hewitt boat that has been overcome in the new models is the racing of the engine, due to the propeller blades reaching above the surface of the water. This has been done away with by placing the propeller lower, so that the blades will not at any speed come within a foot of the surface.

The theory of hydroplane being once understood, the construction is comparatively simple. Comte Lambert, even in his later craft, has followed practically the lines of his early models. He uses two main floats running along the whole length and joined at the end by a light platform. The planes extend clear across the width of the boat, and they are formed of five flat surfaces. The spacing of these planes and their angles have changed somewhat in the last year, and the weight of the motor has been reduced until it averages less than three pounds to a horsepower.

Some of the most successful hydroplanes recently designed in Europe were by W. H. Fauber, in Nanterre, France, and show a number of small planes let into the bottom of the hull. We reproduce herewith the lines of one of his recent 8-metre boats, which, he claims, will carry a motor of 150 to 200 horsepower. The bottom of the boat is composed of concave V-shaped surfaces, arranged in such a manner that great stability is secured, according to the inventor. The V-shaped surfaces beneath the bow have a sharper angle than towards the rear, it being explained that this feature eliminates the "pounding" motion so common in flat-bottomed hydroplanes. Mr. Fauber, indeed, has good reason to consider himself the pioneer of a hydroplane construction adapted to hulls having the lines of the accepted type of boat.

The hydroplanes are essentially speed craft and can hardly be designed for comfortable cruising, but in developing them a new theory of navigation is being slowly evolved. To a considerable degree this makes the hydroplane of more than merely racing value. The designers of torpedo boats have been experimenting with the hydroplanes to ascertain if the principle of gliding over the water instead of through it may not prove of practical value to the naval scouts of the future. While fundamental patents on the gliding boats are controlled by the French designer and pioneer, there is sufficient latitude for ingenious designing and experiment to make variations from those worth while. Freaks have been developed, of course; but, aside from these, hydroplanes are performing distinct feats which may eventually modify speed-boat designing of the future.



LA RAPIERE III AT FULL SPEED. SHE HAS DONE 31 MILES AN HOUR.

The Boat Behind

PRECAUTIONS TO BE OBSERVED AND METHODS TO BE FOLLOWED IN TOWING A SKIFF, CANOE OR LARGER BOAT BEHIND A POWER CRAFT

By HAROLD WHITING SLAUSON

THE sight of a motor boat speeding along with a line of eight or ten skiffs trailing in its wake, each following accurately in the path of the preceding one, will tend to convey the impression to the mind of the landlubber that towing is an easy matter and that the only thing necessary is to make fast the bow line of the boat behind, start the motor and "let 'er go." But if he merely follows this simple formula and takes no other precautions, he will probably find his tow half full of water, or completely capsized, before he has a chance to shut off the power of his motor boat; for proper towing, even of a single boat, is *not* so easy as it looks unless certain rules regarding the distribution of weight, the length of line and the points at which it should be made fast are strictly followed.

The chief difficulty to be overcome in towing is the tendency of the boat to yaw or zig-zag from side to side in the wake of the power craft. After a few mad rushes from port to starboard and back again, the bow of the boat in tow will have run up to a point nearly in line with the stern of the boat towing, when a side pull will be exerted by the towing rope which will give the boat a list and cause the water to pour over the gunwale near the bow. This will result in a swamped tow unless the motor is stopped immediately, the unfortunate craft bailed out and conditions changed so that she will trail in a straight line in the wake of her leader.

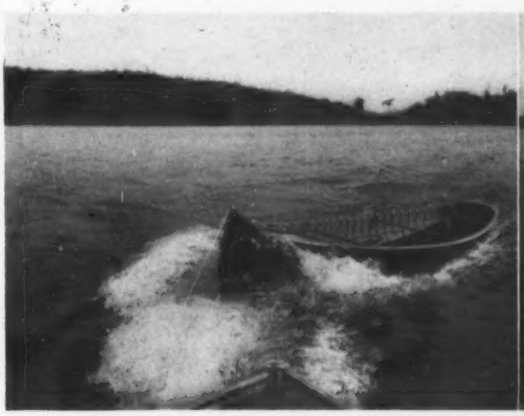
To obtain the only conditions under which the towing of a skiff or canoe is practicable, all the movable weight should be shifted to the stern of the craft so that the bow will have a tendency to raise slightly from the water. If a passenger is riding in the tow, he should sit well aft, and under no condition should he shift his weight forward while the boat is in motion. A case in point illustrating the danger of a violation of this rule was once brought forcibly to my notice. An 18-foot canoe containing two men was being towed by a motor boat at the rate of about seven miles an hour. The occupants sat well in the stern, and the canoe followed easily in the wake of the power boat until one of the men moved forward a short distance to reach for a sweater in the bow. No sooner had he shifted his weight a couple of feet than the sharp bow, acting as a vertical plane, caught the wake, the canoe shot off to one side, and the water came pouring in over the gunwale. Only the quick action of the engineer of the power boat in stopping the motor prevented the canoe from capsizing.

A skiff or canoe when being towed will have a tendency to raise its bow from the water and settle at the stern. This is due to the fact that the speed of the boat doing the towing is much greater than that for which the skiff or canoe was designed; but this tendency does not remove the necessity for shifting all movable ballast toward the stern. Under these conditions, if the ballast is not placed in the stern, difficulty will be encountered before the boat has attained full headway, or after the boat has been stopped and the tow is moving under her own momentum. It is often a remarkable sight to see a skiff in tow behind a high-speed motor boat. When the motor boat attains a speed of something near twenty miles an hour the skiff appears veritably to stand on end, so high does the bow project above the surface, and the occupant of the stern seat will be hidden from view completely by the immense wings of water, which rise to a height of 10 or 12 feet on either side.

The point at which the tow line is made fast to the boat behind naturally plays an important part in obtaining satisfactory results. Most skiffs and many canoes have the "painter" attached to a ringbolt on the extreme bow deck, or on the forward side of the stem piece, or, if a canoe, to a bolt in the stem band, and this is the best location for the application of the pulling force. The farther astern the tow line is fastened, the greater will be the trouble encountered; but in the case of canoes not equipped with a ring in the bow to which a line can be attached, the forward thwart must be used. In many cases this is too far back to obtain successful results, and, if possible, some arrangement should be provided for keeping the line in place so that it will pass over the extreme bow of the canoe. The other end of the tow line should be fastened to the stern cleat or bitts of the power boat.

More important, even, than the location of the ballast is the length of the tow line connecting the two boats. This should be of such a length that the bow of the tow rests on the crest of one of the stern waves, which always follow the boat at right angles to her course. In small motor boats of the cruising type these waves will appear at intervals of from 25 to 40 feet. The first of these appears at the extreme stern of the power boat, and the spaces separating the succeeding stern waves represent the distances apart at which all craft towed in line must be placed. A skiff or canoe may then be towed close to the stern of the power boat, or at intervals represented by the crests of the succeeding stern waves.

It is probable that close towing, with the bow of the skiff near the stern of the power boat, will give less trouble, so far as adjustment of the towing line is concerned. When the power is shut



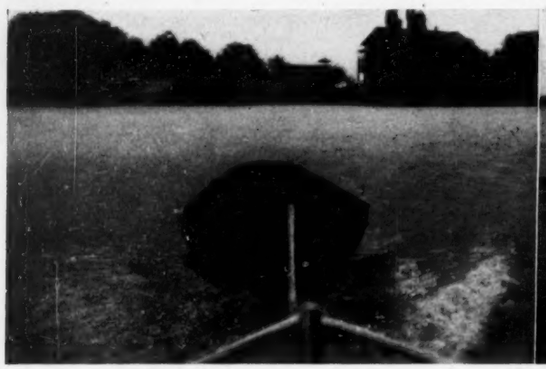
THE WRONG WAY. WHAT HAPPENS ON A TURN IF THE BOAT IS TOWED BETWEEN TWO OF THE STERN WAVES.

THE RIGHT WAY. TOWING A CANOE ON THE FIRST STERN WAVE—THE EASIEST WAY TO TOW FOR SLOW SPEEDS.

off, however, the proximity of the boat following brings the two together. This may do no more serious damage than to scratch the paint of the power boat, and can be guarded against if some one is watching to fend off the bow of the tow. It is probable that, for a tow consisting of a single light boat, the nearest stern wave is the best location at which the craft can ride.

If a heavier boat is in tow, or if a great amount of starting and stopping is to be done, the second stern wave is the best place at which to tow. From this, or any of the succeeding stern waves, the tow will follow in almost the identical wake of the power craft, no matter how sharp a turn is made by the latter. The length of line will allow the momentum of the tow to die down almost entirely before the power boat is reached, and if but one man is operating the latter, he is given time to step aft and attend to the skiff after the motor has been stopped. Great care must be taken in starting again, however, to make certain that the slack line does not catch in the propeller. Unless the line has been marked previously, it is almost impossible to determine the length necessary for good towing until after the power boat is under full way; and as a couple of feet more or less may make a great difference in the results, particularly on a turn, it is well not to set the rope permanently until the maximum speed is attained. A good plan before starting is to give the tow line a couple of turns around the cleat in the stern deck of the power boat and hold the free end firmly in the hand. Then, as the speed is increased, the rope may be paid out gradually until the proper length has been reached, when a half-hitch additional around the cleat will hold it permanently. This is a good method to follow each time the boat stops, for then will there be no danger whatever of the tow line getting foul of the propeller.

For high-speed towing, a length of line which allows the boat to ride on the second, or even the third, stern waves, is preferable to one which holds it on the first wave, for the tendency of the bow to raise out of water makes a greater strain on the short length and will hold back the power craft perceptibly. Under none of these conditions of towing is it necessary for a man to ride in the boat behind, for there is no steering to be done. Such an occupant, however, may make himself useful by checking the momentum of the tow with an oar or paddle the moment the motor is stopped, thus preventing the possibility of the boats coming together. A ride in a tow behind a high-powered motor boat is exhilarating in the extreme, for the sensation of speed is increased by the closeness to the water of the smaller craft, and the absence of the noise and vibration of the engine give the impression of sailing or flying over the water rather than that of being pulled.



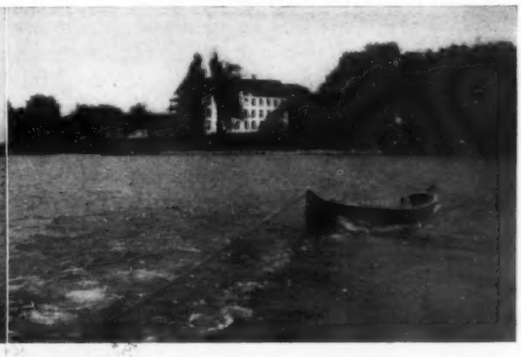
THE RIGHT WAY. TOWING A HEAVY BOAT CLOSE UP ON THE FIRST WAVE CARRIED UNDER THE STERN OF THE POWER BOAT.

THE WRONG WAY. TOWING A CANOE BETWEEN THE FIRST AND SECOND STERN WAVES. AS SOON AS THE POWER BOAT BEGINS TO TURN, THE CANOE WILL SHEER AND FILL WITH WATER.

A number of boats may be towed either in a line or side by side. If six or eight are to be towed, it is well to attach one so that it rides on the first stern wave and two on each succeeding wave. Two or more abreast should not be towed from the nearest stern wave, as the short length of line would bring their gunwales in contact and some paint or varnish would be lost in the scrimmage. For the same reason it is better to tow three abreast on the third stern wave rather than on the second. As many of the tow lines as practicable should be fastened to the power boat; but if the number of craft is too great, the lines may be passed from one to the other. In this case it is necessary for a man to sit in every boat to which another is attached; but as two or three may be towed from a single skiff, two persons can attend to six or eight craft easily.

In towing a disabled motor boat or sailboat, her rudder can overcome any tendency to zig-zag from side to side, and so it is not necessary, for a short distance at least, to have her bow ride on a stern wave. The wheel must not be neglected for an instant, however, for the craft in tow may take a sudden swerve to one side or the other, which, if she is heavier than the boat ahead, may result in the capsizing of the smaller boat. When once the boat in tow gets started on a side shoot, she is liable to continue in that direction until her bow is opposite the stern of the other, and when this happens it is time to stop the motor, for if they diverge further the rope becomes tighter and tighter until it either snaps or one or the other of the boats is overturned.

THE RIGHT WAY. TOWING A CANOE ON THE SECOND STERN WAVE, WHERE SHE WILL FOLLOW IN THE WAKE WITHOUT TROUBLE.



THE WRONG WAY. BETWEEN THE SECOND AND THIRD STERN WAVES. THE SHEET OF WATER WHICH IS STARTING BY THE PORT BOW WILL EVENTUALLY POUR IN OVER THE GUNWALE.

A flat-bottomed boat or scow having no keel, and with both bow and stern square, is an exceedingly difficult craft to tow well un-

less it is equipped with a rudder and in charge of a man who understands his business. With such a craft in tow it is better to attach two lines to the bow—one to each corner—and fasten these to the same cleat on the stern of the power boat, making a sort of bridle. This will prevent the scow from swinging too much from one side to the other.

It is sometimes advisable in towing a house boat, sail boat, scow, or other large craft, to lash the power boat alongside. When this is done fenders should be placed between the gunwales of the two craft, as the side pressure is very great. This method of towing enables one man to operate the engine and, if the power boat is small enough, to steer both craft easily. The bow and stern lines of the motor boat should pass to corresponding parts of the tow and both should be drawn very tight. The forward line should be hauled in so that the bow of the power boat when at rest is closer to the tow than is the stern. When the motor is started the power boat will move ahead slightly before the other starts, the slack of the stern line will be taken up, the bow line will be slackened gradually as it approaches a right angle, and the two boats will travel alongside each other, practically parallel. If the tow is larger than the power boat, better results can be obtained by steering from the former, for its heavier rudder will give a much better control to the twin craft. This method has the advantage of allowing stopping, starting and reversing of the motor, with no danger of a collision between the two boats or of the tow line becoming caught in the propeller.

Of course if a boat is large enough to be equipped with davits, or has decks of sufficient size, a skiff or canoe should be carried on board in preference to being towed. For the smaller boats, however, a tow line forms the only available means of taking the little craft along, and a knowledge of the best methods by which to do this may prove a help many times during a season.

The Season of 1909 on Narragansett Bay

A SUCCESSFUL SEASON OF RACING IN WHICH THE INTEREST WAS HEIGHTENED BY THE VICTORY OF LOCAL BOATS IN THE INTER-BAY CATBOAT RACE AND THE ADDITION TO THE FLEET OF A NUMBER OF FAST BOATS FROM OTHER WATERS

By T. R. GOODWIN

THE success of the Massachusetts Bay 22-foot restricted class on Narragansett Bay during the two previous seasons led to the trial of the famous 18-foot restricted class in 1909. There were already a number of craft complying with the restrictions enrolled in the local fleet and their performances had attracted much interest to the class, but as they had always raced under a measurement rule, the real sport to be had from racing these boats had not yet been found.

Late in the year 1908 a local 18-foot knockabout association was formed, and the restrictions that had made this class so successful in Massachusetts Bay, on the Lakes and on Long Island Sound, were adopted with but slight changes. New boats from other waters were added to the fleet and they were raced, boat for boat, from the early spring months until late in September, one boat, the Hugi, starting and finishing in 31 contests. The comparatively small first cost and upkeep, the ease of securing small crews, and the speed and ability of the boats themselves, all combined to make it the most successful class ever seen on Narragansett Bay, and already from ten to a dozen new boats are talked of for 1910.

START OF THE SECOND RACE OF THE INTER-BAY CATBOAT SERIES ON BARNEGAT BAY. WON BY INA.

In addition to the sport in the knockabout class, the 30-foot sloop division, Class P, the smaller sloop class, the catboats and the percentage boats all furnished good sport in their different divisions, and the success of the local catboats at Barnegat Bay, and of May Queen on her trips to Buzzard's Bay and Long Island Sound, gave an additional interest and attracted outside notice to Narragansett Bay craft to a greater extent than ever before. The famous long-distance racer Nutmeg, enrolled in the R. I. Y. C. and by virtue of her presence in most of the N. B. Y. R. A. races for two years past, considered a local boat, made a wonderful record in the long races along the coast.

The regular racing developed two remarkable boats: May Queen, a ten-year-old Herreshoff combination sloop, and Hugi, one of the 1904 crop of Massachusetts Bay 18-footers from the boards of F. D. Lawley, of South Boston, Mass.

May Queen was purchased from Buzzard's Bay by J. C. McCoy, a newcomer at the game, and was captained by F. B. Thurber, of Bermuda racing and Little Haste fame. She was the possessor of an excellent record in her old home, but there was no way of establishing a comparison of her worth against outside craft. She is a very handsome mahogany craft 41 feet on deck, 25 feet L. W. L., 10 feet beam, and with a draught of 4 feet without board. In appearance she somewhat resembles the Newport "thirties," but with longer and more graceful ends and higher freeboard. She carries a comparatively small rig of 950 square feet. In addition to her abilities as a racer she has a very comfortable cabin sleeping four. She raced against Medric II and Setsu, two M. Y. R. A. 22-footers; Jewel, a Newport "thirty"; Capsicum, a speedy Q class boat; Chewink II, a M. Y. R. A. 25-footer; Priscilla, a local veteran, and the two new Herreshoff 25-foot cruisers Senta and Hyepus.

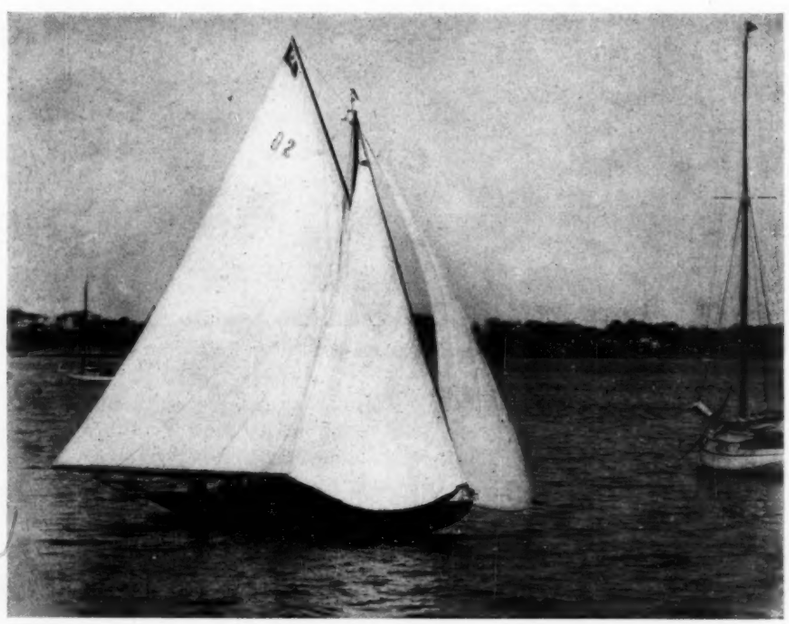
May Queen was not beaten across the finish line in a single

race during the entire local season, but lost first honors in three races on time allowance, only one of which, however, was a championship contest. She captured the Edgewood Yacht Club Commodore's Trophy with a perfect score, secured the Rudder Cup for the long-distance race from Fall River to Edgartown, Mass., the McKee Cup for a race from Bristol around Brenton's Reef Lightship, and won eight out of nine championship races in which she competed, thereby securing the Cock o' the Walk Pennant and the Weybosset Jewelry Company Cup. She was taken around to her old racing ground in Buzzard's Bay for the Van Rensselaer Race; and although she was up against twenty-one boats, comprising the pick of the Buzzard's Bay fleet, and her crew were entire strangers to the course and conditions, she secured the prize for the sixth consecutive season. Her showing was all the more remarkable from the fact that she was started practically last in order that the other boats might show her the way, and passed every boat in the fleet on the journey. At the close of the local season she was taken to Sea Gate for the Race Week of the Atlantic Yacht Club.

HUGI WON TWENTY-FOUR PRIZES OUT OF THIRTY-ONE STARTS AND TWO CHAMPIONSHIP PENNANTS IN THE 18-FOOT CLASS.

Under the uniform rule she suffered a severe quarter beam penalty and rated in Class P., where she had as competitors the speedy Mimosa III, a boat of nearly twice her tonnage and with a third more sail, whose defeat of the new Naulahka at Larchmont ranked her as one of the swiftest P Class boats afloat. In addition to Mimosa III there was Crescent, a two-year-old Gielow boat built for the rule, and she also started against Phantom, a 35-foot W. L. yawl; Vivian II, a Herreshoff sloop of about equal size, and Eidolon, another big topmast sloop.

The racing in Gravesend Bay was characterized by extremely heavy winds. On the first day it reached a velocity of 35 miles during the race and at no time during the first three days was it less than 12 miles. Mimosa is a notable heavy weather boat, while May Queen is at her best in winds from 7 to 12 miles. In the first day's racing she was caught under whole sail and beaten quite badly by Mimosa III, but defeated all the other craft in her division. The second day saw an accident to her throat halyard block, which put her out of the running; the third sail of the series showed a 12-mile breeze at the start, and May Queen walked away from the class in remarkable shape all over the first leg, but the wind came in heavy on the second round and she was passed by Mimosa, although the latter was unable to give her allowance, and May Queen took the race.



ISEULO.

Saturday, September 4, she took part in the racing off Oyster Bay. Her class rival was the speedy yawl Ninfea. The weather was very heavy, but there was ample warning and she was shortened to easy canvas. She ran away from the yawl, but had an interesting race with the N. Y. Y. C. "thirties" in their own weather, beating the entire class with the exception of Phryne and Nepsi, which succeeded in passing her in the last couple of miles after trouble developed with May Queen's rudder.

Labor Day she was taken to Larchmont. Mimosa III was there for the express purpose of breaking the tie that existed between the New England and the Long Island Sound craft. With high hopes May Queen stood for the starting line, but her rudder carried away entirely shortly before the start and she was out of it. It was a great blow to her skipper and the crew who had come so far for the sport, as on previous performances there hardly seemed a doubt that she would defeat her rival.

Of the other boats who raced in Class P in Narragansett Bay, the sturdy Medric II was about the only one that offered any opposition to May Queen, although Hollis Burgess brought Chief around for the week of racing and did fairly well in the few races in which he participated. Medric sailed very consistently, securing five firsts and five seconds in championship races, capturing the R. I. Y. C. Brenton Reef series, and the trophy offered for the best percentage in the class during the week of racing. In justice to May Queen, however, it must be stated that in four of the five races won by Medric, May Queen did not start, that she lost the Race Week prize by not having enough starts, and that the final leg of the Brenton Reef series was sailed on the day that the McCoy craft was sailing in Buzzard's Bay. In addition to her other winnings, Medric secured a leg on the Possner Trophy while May Queen was on the New York trip, and won the Newport Cup for the second highest percentage for the season. The rest of the boats in the class made but indifferent showings.

Setsu and Jewel made but few starts, although the latter showed that with better knowledge of the boat by her skipper she

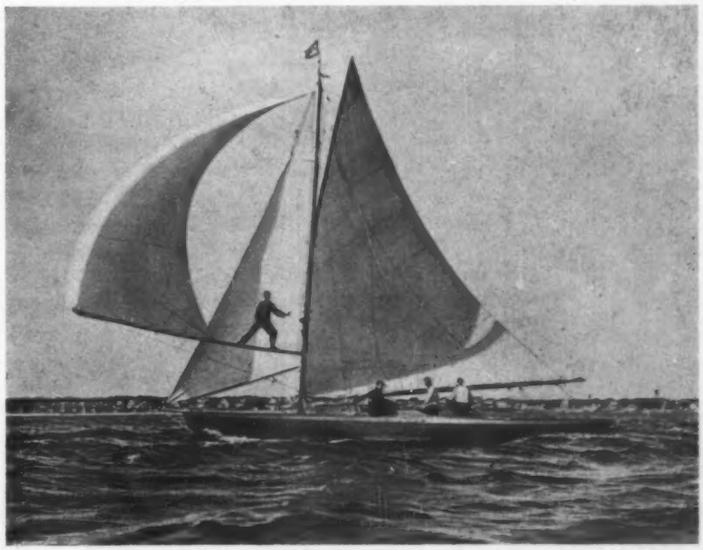
could push May Queen to the limit. Chewink II was another that was not raced enough to really prove her out.

In Class Q, sloops from 21 to 25 feet rating, some keen racing was developed between Iseulo, a clever Crowninshield 21-footer, and Sheerwater, a Lawley craft of the same class. Iseulo was a wonderful boat in heavy going, but slow in lighter airs. She captured the championship, however, while her rival took the trophy for the week of racing. Nine boats made starts in this class from time to time, but none of the others stuck at it.

The real racing of the season was among the 18's. There were already in local waters, Mustang, Nada, Bonito, Dazzler, Ayaya, Copate, Moslem, Flash and Pinafore. To this fleet were added Hugi and Cuyamel, now named Grayling, from Massachusetts Bay, and Bat, Tema (ex Question) and Raduga, from Long Island Sound. Bat, whose clever handling by Chas. Francis Adams in Massachusetts Bay during the great seaseasons of 1904 and 1905 had placed her as one of the fastest 18-footers afloat, had added to her reputation by two highly successful seasons on Long Island Sound. Tema was a slightly older boat, a Shiverick center boarder, with a very good record both in Massachusetts Bay and Long Island Sound; Grayling, a Massachusetts boat with a fair record, and Raduga, an unknown proposition.

INA, A NARRAGANSETT BAY BOAT, WON THE INTER-BAY CATBOAT RACES ON BARNEGAT BAY.

Hugi was the surprise of the year to everyone, including her designer and builder, her skipper, her owner and her competitors. She was designed by Fred Lawley and built at the Lawley yard in 1904. She showed speed in heavy weather during the season of 1904 and secured seventh place in the figuring, but in her racing since that time had shown nothing more than mediocre form. She is 31 feet O. A., 18 feet L. W. L., 7 feet 3 inches beam and 5 feet draught. She carries a chunk of 1,500 pounds of lead and a sail area of 450 square feet. There is nothing abnormal in any of her proportions, the overhangs being fairly low and full, with the slightest suspicion of a reverse curve forward. She is a little ship in every respect, with a small house that affords comfortable sleeping quarters for two. She was sailed by "Lightsails" Goodwin, who made his debut as a helmsman with her and resigned the forward work to a capable crew, while her owner Porter Fearey was at the mainsheet. During the early part of the season she carried a flat mainsail, and true to her Massachusetts Bay record, proved unbeatable in strong breezes. Later in the season a sail of considerable drive was substituted and she showed a complete reversal of form, winning in light to medium airs and being beaten once or twice by Bat in heavier going.



MAY QUEEN, THE MOST SUCCESSFUL OF THE LARGER BOATS, WAS NOT BEATEN ACROSS THE FINISH LINE IN A SINGLE RACE ON NARRAGANSETT BAY.

Hugi started in every race for which she was eligible, with one exception—a total of thirty-one starts. She won twenty-four prize trophies and two championship pennants. In the championship series she won nine out of eighteen races, secured two seconds and five thirds, four fourth places filling in the balance of her starts. She captured the Championship Flag and the handsome Tilden-Thurber trophy by a margin of nearly ten per cent. over Bat. She also secured the Edgewood Yacht Club championship series of four races and was second to Bat by 35 seconds in the 18-foot Association Race, which wound up the season.

She competed in four series of long races against craft of all size, landing second in the R. I. Y. C. Brenton Reef races, as well as first prize for the boats of her class. She also took third prize in the McKee-Brenton Reef race, second in the Streeter Cup race, and secured the Ford Trophy for the winning 18-footer in the Association Day Race around Prudence Island. But her most notable race was for the Tribune Cup. Seventeen boats started on the journey from Pawtuxet to and around Bishop's Rocks Buoys and return, a distance of about 30 miles, including May Queen, Nutmeg, Medric II, Setsu, Chewink II, Bat, Tema and Mustang. There was a puffy west wind giving a beam reach all the way down, while just before the turn was made a heavy squall passed, followed by a "rip snorter" from the northwest, that increased rapidly to 35 miles per hour. Hugi and Nutmeg alone carried whole sail over all the course, and the work of the 18-footer was little short of marvelous. She defeated, boat for boat, the big sloops Setsu, Chewink II and all the 21-footers except Iseulo, tied with Medric, and was fourth boat across the line. She secured first place by 18 seconds from May Queen and defeated Nutmeg by nearly 4 minutes in the only long race of the year in which that famous craft was beaten. She also secured the first prize for 18-footers in the same event, the second boat of her class finishing about one hour astern of her.

Of the other boats in the class, Bat and Tema were the only ones that displayed ability to go with Hugi day in and day out. Bat met with several accidents and did not approach her true form until the season was well advanced, but from then on she and the champion were a well-matched pair and furnished excellent sport. Bat captured the Race Week prize, starting in six as against eight races sailed by

(Continued on page 80.)

Some Hints on Carburetor Adjustment

By HERBERT L. TOWLE

WHEN a carburetor is once set approximately right, it is well to let it alone as much as possible until experience brings skill. Nevertheless, it is rarely possible or advisable to follow this precept all the time, as changes of weather, and sometimes of the carburetor action itself, necessitate changes of adjustment. When this situation arises, much depends on whether or not the owner has a reasonably clear understanding in advance of the effect to be produced by a certain change. Unless he knows this, he runs a risk of "queering" the mixture to such an extent that the engine cannot be started. If he has not taken the precaution to mark the former adjustment, so that it can be restored and the engine started, his case is indeed unenviable, for he must try one adjustment after another till the engine starts, and then cautiously manipulate the adjustment, with the engine still running, till satisfactory power is obtained. As a general rule, it may be remarked that, for the novice, by all means the safest plan is not to change the adjustment except when the engine runs, since then the effect of the change is instantly noted, and even then to change only one adjustable element at a time.

The thing about a carburetor which is easiest to adjust wrong and hardest to adjust right is the auxiliary air valve spring. Many things enter into the correct working of this valve besides the setting of the adjusting screw, among them being the number of turns, the diameter of the turns, the size and stiffness of the wire, and the shape of the passage afforded when the valve opens. Of these elements the principal ones are the first and last. The latter is not ordinarily subject to adjustment, but in case a simple slackening or tightening of the spring fails to give good results, improvement may sometimes be had by increasing or reducing the number of turns.

To understand the matter, let us see exactly what the internal action of the carburetor is.

The ordinary automatic carburetor consists of the following elements:

An air passage having an intake of fixed size;

A gasolene spray nozzle, usually vertical, but sometimes slanting, centrally located in the narrowest part of the air passage just mentioned;

A float chamber wherein a float and valve automatically maintain the gasolene level just below the mouth of the spray orifice, so that it will not overflow when the engine is not running;

An auxiliary air intake controlled by a suction valve and spring;

A mixing chamber wherein the pure air entering by the auxiliary valve is mingled with the carbureted air stream coming past the gasolene spray orifice.

When the engine is at rest the auxiliary valve is closed, and it does not open till a certain suction is produced in the mixing chamber, represented by a speed of usually from 200 to 300 r. p. m. At lower speeds all the air enters by the primary intake and goes past the spray nozzle.

The air flow through the primary intake, the gasolene flow from the spray nozzle, and the air flow through the auxiliary valve vary according to the suction in the mixing chamber, but at rates following different laws; and it is the problem of the carburetor maker and user to manipulate these rates of flow to produce as nearly as possible a mixture of suitable proportions at all suctions. It is generally held that at low speeds the mixture should be richer than is necessary at high speeds. This, however, is a detail. The owner is concerned only with knowing how to manipulate the adjustments to obtain whatever mixture is found by trial to make the engine pull strongest on each given throttle opening.

The simplest and clearest way to illustrate the different actions of the air and gasolene streams is by diagram. Let us take the primary air stream first.

The maximum suction ordinarily encountered in the mixing chamber corresponding to full engine speed is equal to about 25 inches of water, or 14.4 ounces per square inch. Within this limit the velocity of the air through the fixed intake is approximately proportional to the square root of the suction. It, therefore, follows a curve similar to *A B*, Fig. 1, in which horizontal distances represent suctions and vertical distances rates of air flow.

The rate of gasolene flow is much less definite. It depends not only on the suction, but equally or more on the shape of the spray orifice. It may be approximately in proportion to the square root of the suction like the air stream, or it may approach the first power of the suction. In the former case this curve *A C D* would resemble *A B* in form; in the latter case, it would be a straight line starting at *A* and having a slope depending on the size of the orifice; for example, the line *A E D*.

The actual curve of gasolene flow does not begin at *A*, but at some point such as *F*, because a certain suction is required to lift the gasolene to the mouth of the spray orifice, and an additional suction to break it up into spray. In ordinary forms of nozzle the tendency at moderate speeds is for the gasolene flow to be in proportion to the suction, but at high speeds it falls off, owing to friction in the nozzle. The actual curve of gasolene flow will, therefore, somewhat resemble *F G D*. Since this curve is fixed by the suction, and the suction is determined by the engine's speed and the throttle opening, it follows that we must manipulate the air openings to obtain a total air flow by weight approximately from 18 to 24 times as great as this gasolene flow, those being about the right proportions for low and high speeds, respectively. That is, our desired curve of total air flow will be approximately *H I*. If air enters in excess of this curve, the mixture will be lean. If less air enters, the mixture will be rich. How shall we obtain the correct flow for each suction?

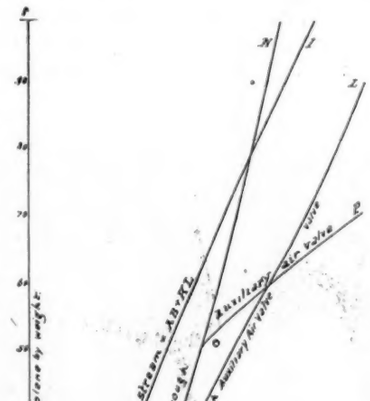

Rate of flow of air and gasoline by weight
Ideal air stream = AB or KL
Actual flow through fixed intake
Added flow through auxiliary air valve
Auxiliary air valve
Primary air stream
Suction in inches of water

FIG. 1.

To begin with, curve *A B*, representing the air flow through the primary intake, is, in a sense, fixed. We can change it by enlarging or reducing the intake if means is provided, but we cannot change its character. Evidently from *A* to *J* the air is in excess; consequently, *J* represents the lowest suction and speed at which the engine will pull strongly. It will run a little slower, but with explosions of diminished force. To start the engine, we either supply gasolene in excess of the nozzle's normal delivery by priming, or we choke the air intake by a special valve, thereby produc-

ing an unusual suction, which gives the same result as priming. To the right of *J* additional air must be admitted by the auxiliary valve. Curve *K L*, which is the difference between *H* and *A B*, represents the desired auxiliary air flow.

Since we do not wish the auxiliary valve to open under a suction less than that represented by point *J*, we hold it to its seat by an initial spring tension sufficient to balance that suction. Suppose this suction is 4 inches of water. It is a law of spring action that, till the elastic limit is reached, a spring deflects by equal amounts for equal increments of load. For example, if a certain spring is 2 inches long unloaded, and compresses an eighth of an inch under a load of one ounce, it will compress ¼ of an inch under two ounces, ⅜ under three ounces, and so on up to its elastic limit. Therefore, if the auxiliary valve spring is compressed, say 1-16 inch, in producing the initial tension needed to resist a suction of 4 inches of water, it will compress another sixteenth under another 4 inches of suction. That is, it will allow the valve to open 1-16 inch. Under the next 4 inches of suction it will compress another sixteenth, and so on. And if the valve is not sooner arrested by a stop, it will open 5-16 inch under a suction of 24 inches of water.

If the air passage around the auxiliary valve is totally unobstructed; in other words, if the air passage is determined only by the lift of the valve, the air flow through this valve alone will be in proportion to the product of the lift and the square root of the suction. Therefore, it will follow some such curve as *M O N*. Evidently, while this does fairly well for medium speeds, far too much air is admitted at high speeds.. A crude correction may be had by simply using a stop to arrest the opening of the auxiliary valve at a suitable point, such as *O*. Then the curve of flow through this valve will be *M O P*, which is to be added to *A B* for the total flow. As will be seen, the result is a mixture first rich, then lean, then rich again; but at ordinary speeds it is sufficiently near the ideal curve *K L*. By suitable adjustment the performance for a particular range of speeds can be improved, but at the expense of all-around efficiency.

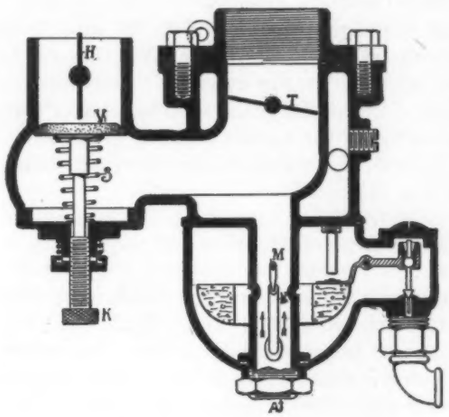


FIG. 3.—TYPICAL AUTOMATIC CARBURETOR.

V.—Auxiliary air valve.
S.—Conical auxiliary valve spring.
T.—Throttle.
H.—Choke throttle for starting only.
N.—Spray nozzle.
M.—Adjusting needle (broken off).
A.—Primary air intake.

In some carburetors the air passage around the auxiliary valve is not determined simply by the lift of the valve, but is restricted in some manner so that the effective opening at high speeds is not so great as to call for arbitrary restriction. Such an auxiliary valve is shown in Fig. 2, in which it is seen that the effective air passage is represented by the space between the edge of the valve *A* and the surrounding wall *B B*, rather than between the edge of the valve and its seat. Another method of obtaining approximately the same result is to use an unrestricted passage; but to use a conical spring which compresses easily at first but with increasing resistance as the valve opens, see *S*, Fig. 3. Still another method is to substitute a spring diaphragm and slotted annular shutter for the valve and spring. The opening in the shutter is shaped by experiment to admit exactly the air desired. This is the arrangement used in the well-known Krebs carburetor.

Whether the reader's carburetor is of one or another of the forms described, or some other, the important thing to remember in adjusting is the behavior of the auxiliary valve spring, since ordinarily that spring and the stop are the only adjustable elements other than the needle valve controlling the spray orifice. Opening the needle valve gives a richer mixture throughout the entire range of the engine. It is equivalent to raising the entire theoretical curve *H I* of required air. Increasing the initial tension of the auxiliary valve spring moves the point *J* to the right, and vice versa. Reducing the lift of the valve by means of the stop lowers the point *O* and the curve *O P*, and vice versa.

FIG. 2.—AUXILIARY AIR VALVE WITH AIR PASSAGE RESTRICTED BY SHAPE OF WALLS B B.

In applying these principles to a particular carburetor, it is best to begin by adjusting the needle valve, if there is one, or the auxiliary air valve, if there is no needle valve, to run the engine most strongly on a medium throttle opening. Then reduce the throttle till the boat runs slower, and try whether opening or closing the needle valve improves the power. Make a note of the result, restore the needle valve to its best setting for medium throttle opening, and try again with wide-open throttle. You may find that the engine needs (1) more gasolene at low speeds and less at high speeds, or (2) it may want less at low and more at high speeds. A third possibility is that it needs more at both low and high speeds.

The first condition may possibly be rectified simply by shifting point *J* to the right by increasing the tension of the auxiliary valve spring, and by slackening back the stop to raise curve *O P*. If these do not suffice, reduce the primary air intake, if that can be done. This will give a greater suction before the auxiliary valve opens, but a smaller proportion of carburetted air at ordinary speeds. Adjust the needle valve to correspond—i. e., increase its opening slightly, to give the same mixture at medium speeds as before.

If the primary intake cannot be reduced, substitute on the auxiliary valve a spring with a greater number of turns. The more turns the spring has the more the valve will open under a given suction—i. e., when properly adjusted for point *J*, it will give a greater opening at high speeds.

If the mixture is rich at low and lean at high speeds (second condition), it is because the auxiliary valve spring has too many turns; and to prevent it from opening too much at high speed it is adjusted too stiff for low speeds—i. e., the point *H* is too far to the right. Cut off one or two turns at a time, bend the ends square, and try again, advancing the adjustment each time as needed.

If the mixture is too lean at both low and high speeds (and this is possibly the commonest fault), only an approximate remedy can be found by moving point *J* to the right and lowering point *O* by screwing down the stop. The cause of the trouble is excessive air at low speeds and friction in the gasolene nozzle at high speeds. Cut off one or two turns of the auxiliary valve spring, or more if necessary, to increase the spring tension under maximum opening, and shift the point *J* slightly to the right by increasing the initial spring tension. Restore the balance for medium speeds by slightly reducing the gasolene needle valve opening. Shift point *O* to the left by setting the stop a little closer. By a little careful experimenting along these lines the best all-around adjustment will be found without much difficulty. Once found it is wise, as said before, not to experiment with it except when the engine is running.

Pilot Water Navigation

By COMMANDER C. S. STANWORTH, U. S. Navy

PART VI.

[Note.—This is the sixth of a series of articles on Pilot Water Navigation, or that branch of Navigation that does not require nautical astronomy, or the use of sextant and chronometer.—Editor.]

Winds and Weather.

WIND is air in an approximately horizontal motion and observations of the wind should always include the true direction from which it is blowing and its velocity per hour. For convenience in estimating its velocity an arbitrary scale called Beaufort's Scale is used:

Beaufort Scale.

Force.	Wind.	Velocity Stat. Miles.	Press. in Lbs. Per Sq. Ft.
0	Calm	0-3	
1	Light airs	8	.23
2	Light breeze	13	.62
3	Gentle breeze	18	1.2
4	Moderate breeze	23	1.9
5	Fresh breeze	28	2.9
6	Strong breeze	34	4.2
7	Moderate gale	40	5.9
8	Fresh gale	48	8.4
9	Strong gale	56	11.5
10	Whole gale	65	15.5
11	Storm	75	20.6
12	Hurricane	90 and over	29.6+

Winds are caused by differences of barometric pressure, and these differences are mainly caused by the varying temperatures over the earth's surface and at different seasons of the year.

We may consider the atmosphere as a fluid sea at the bottom of which we live, and which is probably 200 miles deep, though as we ascend its density rapidly diminishes. Air has a definite weight, a cubic foot of air at ordinary pressure and temperature weighing 1.22 ounces, whereas a cubic foot of water weighs 64 pounds. At the earth's surface the weight of air pressing upon it exerts a pressure of about 15 pounds, and to measure this we use the barometer.

Air, like all gases, is sensitive to heat, expanding or increasing in volume as the temperature rises, and vice versa. The sun's rays passing through the air have but little effect in raising its temperature, but when reflected back from the earth's surface, the lower strata is heated, and pushed up by colder air flowing under, and rises, flowing out over the surrounding air, thus increasing its pressure. The lower strata of the outlying air under this increased pressure flows in to fill up the partial vacuum caused by the warm air rising, and atmospheric circulation is established.

Trade Winds.

In consequence of the above, we have along the equator where the air is being constantly superheated, a belt of low barometer, while lying near the tropics, north and south of this belt, are belts of comparatively high barometer. These constant causes produce the nearly constant winds known as the N. E. and S. E. trade winds. The deflection of these winds from north and south is caused by the rotation of the earth.

To make this clear, suppose we trace the imaginary route of a particle of air lying, say, in Lat. 30 N., Long. 30 W., which starts south to fill up a partial vacuum caused near the equator in the same longitude. At the equator the air is moving with the rotation of the earth 1,000 miles per hour east, and at Lat. 30 degrees the air is moving 886 miles per hour. Consequently when our particle of air arrives at the equator it finds that Long. 30 W. has not waited for it, and it arrives at some longitude west of 30, depending upon the velocity with which it traveled. If our particle made the journey to the equator in six hours, it would arrive at Long. 42 W., and its course would be given by a difference of latitude of 1,800 miles and a departure of 684 miles, 6 (1,000-886), and the wind will appear to be blowing from N. N. E. Of course in this we have taken an exaggerated velocity of our particle and an exaggerated length of track. As might be expected, the whole system of pressures near the equator shifts with the seasons, following the sun across the equator.

Extra-Tropical Winds.

On the polar sides of the high barometer belts N. and S. of the equator the pressure diminishes towards the poles, but not in such a marked degree as towards the equator. Consequently there is a general motion of the air from the high barometer belts towards the poles, but owing to the earth's rotation these winds are defected, and we have S. W. winds in the Northern hemisphere, and N. W. winds in the Southern.

From these general movements we have the following important relation between the direction of the wind and the regions of low and high barometers:

In the Northern hemisphere stand facing the wind, raise your right arm until it is horizontal and carry it as far back of you as the muscles allow. You will be pointing to the low barometer. Another way of stating this is that if you stand in the region of low barometer facing the high, the wind will be blowing from your right side. In the Southern hemisphere, face the wind and extend the left arm horizontally and back of you, and you will be pointing to the low barometer.

When the barometric gradients are steep—that is, when the barometer is rising or falling rapidly—the winds are more violent.

Doldrums.

In the equatorial belt of low barometer the pressure is practically uniform, save for the daily variation, and no decided barometric gradients exist. Consequently calms and light, variable winds prevail, with rain and frequent thunder squalls.

Prevailing Westerly Winds.

We have seen that on the polar sides of the high barometric belts the general flow of the air is towards the poles, the earth's rotation causing these winds to become S. W. in the Northern hemisphere, and N. W. in the Southern hemisphere. In the Northern hemisphere the large areas of land surface prevent these winds from attaining the regularity of the trade winds, but in the Southern hemisphere the land areas are small and the uniformity of conditions over the water gives us the "Roaring Forties," where in the region of Lat. S. 40 the winds blow with great force from the westward throughout the year.

Monsoon Winds.

The air over the land is warmer in summer with low barometer, and colder in winter with high barometer, than the air over the adjacent oceans; consequently we have along the Atlantic coast of the United States prevailing S. W. winds in the summer time,

N. W. winds in the winter. On the Pacific coast the summer winds are N. W., the winter winds S. W.

This is strikingly illustrated in the monsoons of the Indian Ocean and China Sea. In January, abnormally low temperatures and high barometer exist over the Asiatic plateau, while over Australia and the Indian Ocean, high temperatures and low barometer exist. In consequence the southern and eastern coasts of Asia are swept by an outflowing current of air, which, deflected by the earth's rotation as it flows south, appears as the N. E. monsoon in the China Sea and northern Indian Ocean. Passing the equator the N. E. wind is now deflected in the other way, and we have the N. W. monsoon of the Indian Ocean as far as 10 degrees S. Lat. In July these conditions are reversed, and we have the S. E. wind until we get north of the equator, when it becomes S. W.

The N. E. monsoon blows in the China Sea from October to April with great steadiness and considerable force. The S. W. (summer) monsoon blows from May to September, and as it has come a long distance, appears as a light breeze, unsteady in direction and frequently interrupted by cyclones known as typhoons.

Land and Sea Breezes.

In summer particularly, the land is warmer than the sea in the daytime, but after nightfall it cools very rapidly from evaporation, becoming cooler than the sea. These differences of day and night temperatures establish slight variations of barometric pressure along the coast and give rise to local winds that blow on the land in the daytime and from the land at night, so that in the late morning we have a sea breeze, in the late evening a land breeze.

Summer Winds.

In the Northern hemisphere, where the land areas are large, the tropical belt of high barometer is broken in the summer time, where it crosses the warm land, and the air shouldered off from the continents accumulates over the oceans, forming an elliptical or circular area of high barometer. From the center of this high barometer the air flows out in all directions, and being deflected by the earth's rotation, assumes something of the characteristics of the winds near a low barometer region, with this important difference, that the circular motion of the winds is in the direction of the hands of a watch. Consequently we have along the southern half of this area of high pressure, starting from East, N. W., N'ly and N. E. winds, and continuing around the Northern half, the winds are S. E., S'ly and S. W.

Weather Bureau Maps.

While general information about the winds and observations of one's own barometer are desirable for all yachtsmen, unless one is making a protracted voyage, much more reliable indications of approaching weather and barometer changes are given in the daily weather maps.

With our general knowledge of the movements of storms, and of the winds to be expected from the relative positions of the high and low barometers over the country, a study of the weather map before starting on a cruise will be of great help.

For better development of the facility of interpreting weather maps they should be posted so that preceding weather maps can be easily consulted, and one should always refer back two or three days and follow up the movements of the high and low barometer regions, and the progressive changes caused thereby. If we are on a cruise and near a telegraph station, a telegram to the nearest weather bureau will always bring the latest prediction.

Tides and Tidal Currents.

To an observer along the coast, the tides present two aspects, a vertical rise and fall of the waters, generally twice a day, and the horizontal flow of the current setting in or out of the harbor.

The term "Tide" is generally applied to the vertical motion of the water, and "Tidal Current" to the horizontal motion.

When the vertical movement of the water has reached its maximum height, we refer to it as "high water" or "high tide," and when it is at its minimum height, "low water" or "low tide," and at the time of change when there is no perceptible vertical motion, the tide is said to be at a "stand."

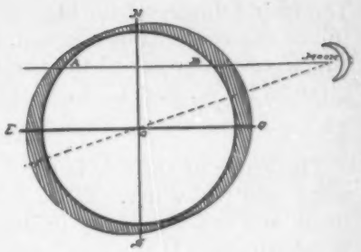


FIG. I.
A.—Day tide; Moon's lower transit.
B.—Night tide; Moon's upper transit.

Generally speaking, when the horizontal motion of the water is from the sea towards the land, the tidal current is called "flood," the motion from the land towards the sea—the "ebb," the intermediate period when there is no flow is called "slack water." "Set" and "drift" are also terms applied to the tidal currents, the set denoting the direction of the current, and the drift its velocity.

Tides are caused by the combined attraction of the sun and the moon upon the earth. Water being a mobile body, its particles tend to heap up under the influence of this attraction, causing an elevation known as the tidal wave. On the opposite side of the earth, from this tidal wave, the water not being attracted as strongly as the earth as a whole, the earth is drawn away, and a corresponding tidal wave is there formed.

The attraction varies directly as the mass of the attracting bodies and inversely as the square of their distance, but the sun is so far distant from the earth that it attracts all particles on the earth's surface nearly alike, and hence has little tendency to cause an elevation of the surface of the waters at any one spot. The moon, however, is so near that its attraction is felt much more by the particles of water lying directly under it, and the tendency of the moon to cause an elevation is consequently about two and one-half times that of the sun.

Our Atlantic tides are not caused by the direct attraction of the sun and moon upon the local waters, but by the arrival of the tidal wave which originates in the South Atlantic Ocean, and following the apparent motion of the moon to the westward, flows out from the center under the influence of gravitation. This wave, which is an undulation of the water, such as the ripple along a flag caused by its flapping, has in mid-ocean a height of from one to two feet, and moves with great velocity in very deep water, but is retarded when the water shallows and its height increases. The configuration of the coast, however, is the principal cause of the increase in elevation of the tidal wave along the coast. Our Eastern coast forms three deep indentations or bays, the projecting points being Cape Sable, Cape Cod, Cape Hatteras and Jupiter Inlet. The tidal wave passing by these points is constricted by the coast line, its elevation being greatly increased at the bottom of the bays. It is due to the fact that our tides are caused by the arrival of the tidal wave originating in the South Atlantic on our coast, that our spring tides are not the tides immediately following the full and change of the moon. At Old Point, Va., the spring tides occur about two days after full and change.

Establishment.

Owing to the predominant influence of the moon in causing tides, it is found by observation that high water and low water occur at a definite interval after the moon's transit. This interval varies during the lunar month, but the average interval remains constant from one lunar month to another. This average interval is called the corrected establishment of the port, or the mean high-water lunitidal interval and the low-water lunitidal interval.

The lunitidal interval for high or low water, when the moon is at full or change remains constant, and is known as the common or vulgar establishment of the port, and on some charts you find it given as H. W. F. & C., L. W. F. & C.

RANGE.

The range of the tide is the difference in height between high water and low water. When the moon is at full or change, the moon and sun are nearly in line with the earth, and their combined attraction is at a maximum; consequently we have very high and very low tides, known as spring tides. When the moon is in its first or third quarter the moon and sun are at right angles as viewed from the earth, and their combined attraction is at a minimum, causing low high tides and consequently high low tides of small range. These tides are called Neap.

The earth moves around the sun in an elliptical orbit, being nearest the sun in January and consequently at that time the solar tides are increased. Also the moon moves around the earth in an elliptical orbit, being in perigee at the nearest point and in apogee when at the farthest point, and the lunar tides caused at this time are called the Perigean and Apogean tides. The plane of the moon's orbit is inclined to the earth's equator, and consequently we have each month the moon north or south of the equator and near the tropics, and the lunar tides at these times are called tropic and are noticeable on account of the great inequality of the day and night tides. A glance at Fig. 1 will show more clearly why this is so.

METEOROLOGICAL TIDES.

The tides are also influenced by strong winds and the height of the barometer, a strong off-shore wind or a high barometer tending to reduce the height of the tides and vice versa.

PRIMING AND LAGGING.

The tidal day is a variable interval averaging 24 hours 50 minutes between two alternate tides, and the amount by which the tidal day exceeds 24 hours is called the daily retardation.

At the time of new or full moon the moon and sun are acting together, but as the moon passes into the first or third quarter the solar tidal wave is to the westward of the lunar tidal wave, and in consequence the time of high or low water is hastened and the tide is said to be primed. As the moon passes into the second or fourth quarter the solar tide is east of the lunar tide and the time of high or low water is retarded, referred to as the lagging of the tide.

The attraction of the sun and moon causes, as we have seen, two high and two low tides each day, called the semi-diurnal tides, but mathematical analysis of the theoretical tide that would be created on a globe entirely covered with water of uniform depth shows there is a secondary tide occurring once a day, known as the diurnal tide. In most places the diurnal tide is much smaller than the semi-diurnal tide and its effect is not noticeable, but in some localities they have only one tide a day.

TIDAL CURRENTS.

Along the open coast or in bights with wide mouths, where the incoming flood or the outgoing ebb meets no obstacles, the maximum tidal currents occur at mid-tide when the water is rising or falling most rapidly, and the tidal current ceases with the rise or fall of the tide, or when the tide is at a stand and we have slack water.

But in the case of a large sheet of water such as Chesapeake Bay, connected with the ocean by a comparatively narrow entrance, this condition does not obtain. Let us suppose the waters of the bay and ocean to be at the same level, and the ocean tide begins to rise. As the ocean level rises above the level of the water in the bay, the current begins to flow in, but owing to the narrow entrance and the enormous volume of water to pour in to cover the large surface of the bay uniformly, the tide outside rises faster and the difference of level between the bay and ocean increases, until when the ocean tide is at a stand the difference of level is greatest, and in consequence the current flowing in is strongest. The reverse of this occurs when the level of the ocean falls. So, generally speaking, for large sheets of water connected with the ocean by a narrow passage, the maximum tidal current occurs at high and low water. The water continues to pour in for some time after the ocean tide begins to fall. At the Tail of the Horseshoe Lightship, the tide does not begin to run flood until about three hours after low water at Cape Henry.

Along the shore the friction of the water on the bottom and shore line brings the tidal current to slack sooner than in mid-channel, and near the shore the water will fall and the ebb begin to run while it is still running strong flood in mid-stream.

Vigilant—A Boat that has Lived

By LAWRENCE PERRY

VIGILANT DRIFTING.

PHILOSOPHERS through all the years have sought to analyze or explain the emotions of those who, having achieved, have survived their day of glory, and, from the viewpoint of accumulated years, forgotten, alone, consider things that once were but are now involved in hazy perspective. No pleasant outlook, we may say, conducive, as it may well be, to sighs and vain regrets. "What holds age for any man," says a writer of our day, who seems to have appraised fame at real value, "but a seat by the doorway with the sound of voices coming in?"

As with mankind, so with boats—they may live too long. Almost any summer afternoon on the Sound you can see one of these—tall, graceful, beautiful still, trim of spar, canvas impeccable, but lonely—lonely as a great pine in a grove of second-growth timber. Standing upon a yacht club veranda when the race is done and the sun's rays are beginning to cross the purpling waters, they will sometimes point to a tall craft scurrying up the Sound, her topsail raking along the tops of the tree-covered hills of Long Island. No need to ask what boat she is; there is but one of her breed afloat these humdrum days. There may never be any more—Vigilant!

One beautiful afternoon last August a small company of yachtsmen were gathered on the bridge of the steam yacht Oneida, lying at anchor off New London, awaiting the finish of the racing yachts of the Seawanhaka-Philadelphia Corinthian cruising squadron. One of them was close at hand, towering mightily as she swept to the line. She was grand! There was the quick,

crisp clack of straining canvas, the creak of halyard blocks, the sharp splitting of waters, the long swish as the hull ploughed them under, the quick patter of feet upon a slanting deck—all united in one great voice, the voice of a 90-foot sloop winning a race.

All hearts went out to the old Vigilant that afternoon, and memories rushed backward to a gusty October day sixteen years ago when, at the close of a long, stern fight, her spars bending beneath a cloud of unreefed sails, this splendid sloop rushed up on Valkyrie, passed her, and shot across the line like a great, strong-winged gull, adding her name to that noble line of craft which had successfully defended the America's Cup.

Only last August she was not beating Valkyrie, but several outbuilt racing schooners and some smaller sloops and yawls. Queen has sailed circles around her; so has Elmina. The science of creating fast boats has advanced since she first took the water at Bristol; but her bronze hull is still sound and glistens in the sunlight as of yore, and the mast is rooted in her deck like an oak tree. She has faced the deep waters; the trans-Atlantic record for windjammers once reposed in her lockers; in the storm which scattered the New York Yacht cruising squadron last summer Vigilant was one of five boats to finish at Portland, Me., under her own sail—a trifle belated, it is true, but this was due to the carrying away of gear. She came along eventually, like the Spartan she was, ready for more storms. That is all anyone can ask of a boat.

Vigilant has lived where others of her class have gone to the scrap heap, or been left high and dry to gather the rust and mildew of a shipyard, because among her components her designer and builder unwittingly incorporated elements of longevity. Nevertheless, this first of the modern cup racers marked the first radical step away from the sturdy principles applied in that glorious company of sloops—Puritan, Mayflower and Volunteer—and may, therefore, be regarded as sort of a questionable memorial to the string of racing machines which seem to have attained their ultimate in that colossal fabric or shell-like hull, tenuous gear and mountainous canvas—Reliance.

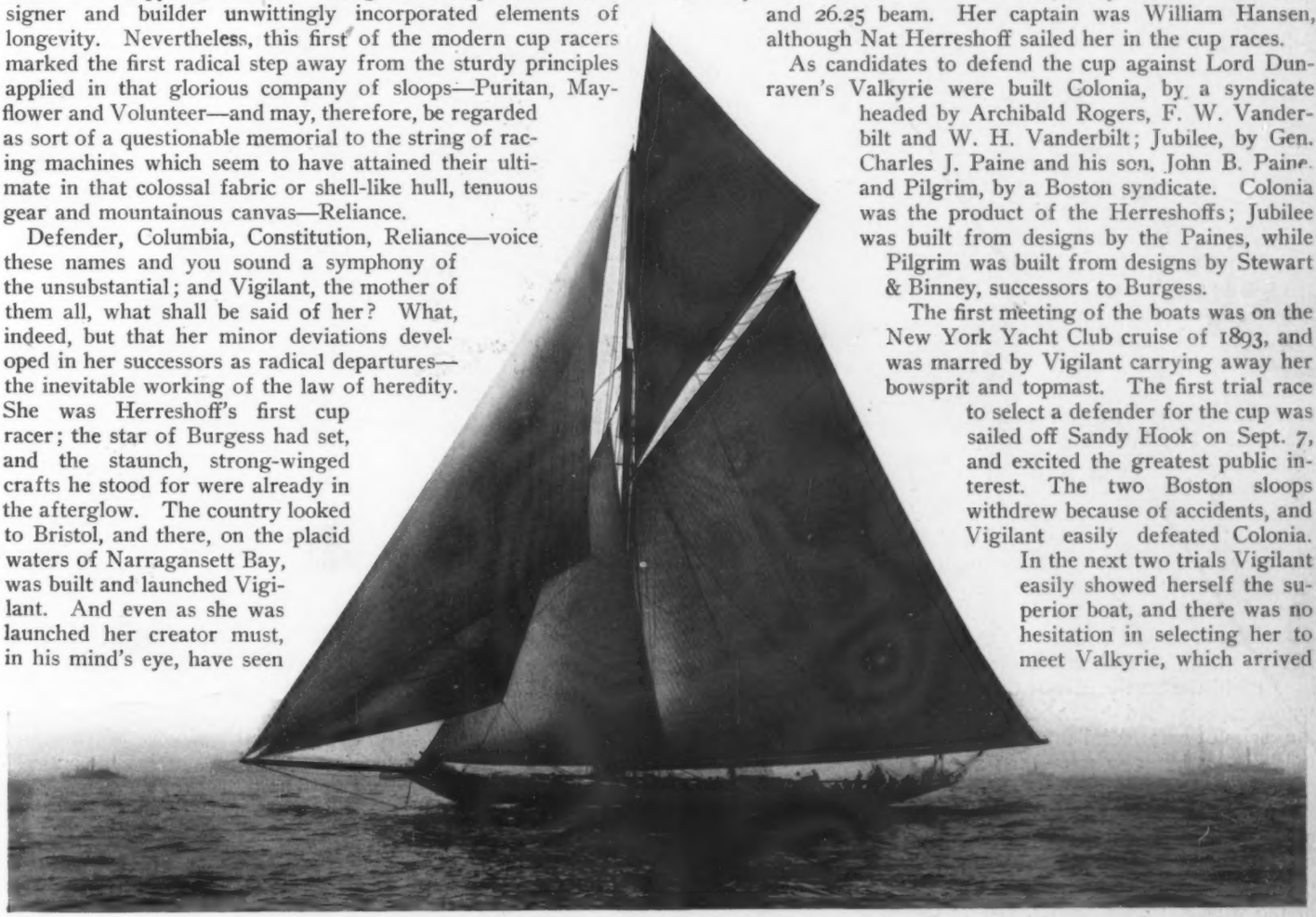
Defender, Columbia, Constitution, Reliance—voice these names and you sound a symphony of the unsubstantial; and Vigilant, the mother of them all, what shall be said of her? What, indeed, but that her minor deviations developed in her successors as radical departures—the inevitable working of the law of heredity. She was Herreshoff's first cup racer; the star of Burgess had set, and the staunch, strong-winged crafts he stood for were already in the afterglow. The country looked to Bristol, and there, on the placid waters of Narragansett Bay, was built and launched Vigilant. And even as she was launched her creator must, in his mind's eye, have seen the boats to come after her; perhaps had he unburdened himself he would have spoken in some such way as this: "Yes, she is a good boat, and whether she wins the Cup or not she will live a great many serviceable years; I do not venture to predict as much for any future 90-foot racing sloops that may leave these yards."

Well, after all, his business was to produce fast boats. That was what he was paid to do, and, holding this thought, it may will be argued that if Vigilant led the way to the fastest combination of metal, wood and canvas that old ocean ever saw, then she was not launched in vain, and may well contemplate honored posterity. You see, there are two sides to the matter—and the America's Cup is still in our possession. Yachting hurt by Vigilant and her successors? Well, possibly; and yet, on the other hand, there is this to be considered—that when Americans want swift windjammers they apply to American designers and builders; they don't go to Great Britain, as they do for their steam yachts. If Herreshoff had begun at the exact point where Burgess left off there seems little reason to doubt that Dunraven's Valkyrie would have sailed to England with the cup. The old order changeth—and we must go on. Let the future judge the Vigilant—sixteen years furnish an incomplete perspective.

Vigilant was built in 1893 for a syndicate consisting of C. Oliver Iselin, E. D. Morgan, August Belmont, Oliver H. P. Belmont, Cornelius Vanderbilt, C. R. Flint, George A. Clark, Dr. Butler Hopkins, E. M. Fulton, Jr., and the estate of Henry Astor Carey. The sloop was launched on June 24, and, at first glance, presented a radical departure from the Burgess boats, her long overhang and spoon bow differing from the fuller-bodied creations of former days. She was 126 feet over all, 86.19 feet load waterline and 26.25 beam. Her captain was William Hansen, although Nat Herreshoff sailed her in the cup races.

As candidates to defend the cup against Lord Dunraven's Valkyrie were built Colonia, by a syndicate headed by Archibald Rogers, F. W. Vanderbilt and W. H. Vanderbilt; Jubilee, by Gen. Charles J. Paine and his son, John B. Paine, and Pilgrim, by a Boston syndicate. Colonia was the product of the Herreshoffs; Jubilee was built from designs by the Paines, while Pilgrim was built from designs by Stewart & Binney, successors to Burgess.

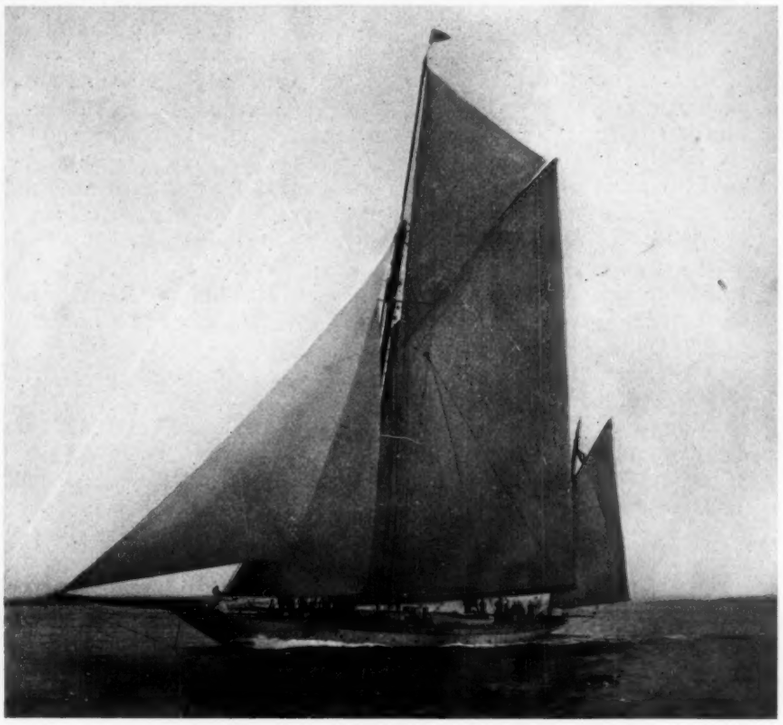
The first meeting of the boats was on the New York Yacht Club cruise of 1893, and was marred by Vigilant carrying away her bowsprit and topmast. The first trial race to select a defender for the cup was sailed off Sandy Hook on Sept. 7, and excited the greatest public interest. The two Boston sloops withdrew because of accidents, and Vigilant easily defeated Colonia. In the next two trials Vigilant easily showed herself the superior boat, and there was no hesitation in selecting her to meet Valkyrie, which arrived



VIGILANT IN THE FIRST RACE AGAINST VALKYRIE, WHICH SHE WON BY 5 MINUTES AND 48 SECONDS.

here on September 22, twenty-nine days and eighteen hours out of Cowes. She crossed under sail, and was badly buffeted by wind and waves. She had but a scant two weeks in which to tune up for the supreme contests, and this may be regarded as little enough for even a much smaller boat than Valkyrie was. There are those who believe that three weeks or a month's tuning up in waters off Sandy Hook would have resulted in a different outcome of the series for the prized trophy; but as it was, scantily tuned, she came up to the line on the morning of October 5 bearing with her the confidence of all loyal Britons.

There was insufficient wind to complete the race within the time limit on that day, and the contest was called off after several hours of drifting, with Valkyrie in the lead. October 7, over a windward and leeward course, the wind being moderate and the first leg to leeward, Vigilant won by 5 minutes and 48 seconds. October 9 there was a wind ranging from 10 knots at the start to 25 knots at the finish. The course was triangular, with the first leg to windward, on which the challenger was badly outsailed. Vigilant won the race by 10 minutes. The last race was held on Friday, October 13, in a wind averaging 15 knots, and was one of the greatest contests ever sailed for the cup. The sloops sailed as one boat for half an hour, and then Capt. Cranfield got Nat Herreshoff under his lee and, with this advantage, pulled out on the American sloop, rounding the first mark 2 minutes in the lead. Coming home in a roaring wind, Vigilant crowded on every sail that could be carried — ballooner, spinnaker, club topsail—until she seemed fairly lifted out of the water. Thousands held their breath, expecting to see the topmast buckle or some part of the gear carry away; but she held on to everything, and fairly clawed her way over the space which intervened between her bow and the challenger's stern. But she never could have caught her, we may believe, had not Valkyrie's spinnaker ripped at a critical moment. Just a small tear it was; but, with the wind piling through, it quickly widened and suddenly split and rolled to either side like a puff of smoke. A new spinnaker—the famous light linen one—was set in nervous haste, but it caught on the way up and in a second was reduced to rags. But Vigilant was booming on. Amid cheers and tooting of whistles on the part of the overshadowing excursion boats, whose captains had done about all they could to make a farce of the series of races, Vigilant swept to the fore and eventually over the line, a winner by more than a minute actual time and forty seconds corrected time.



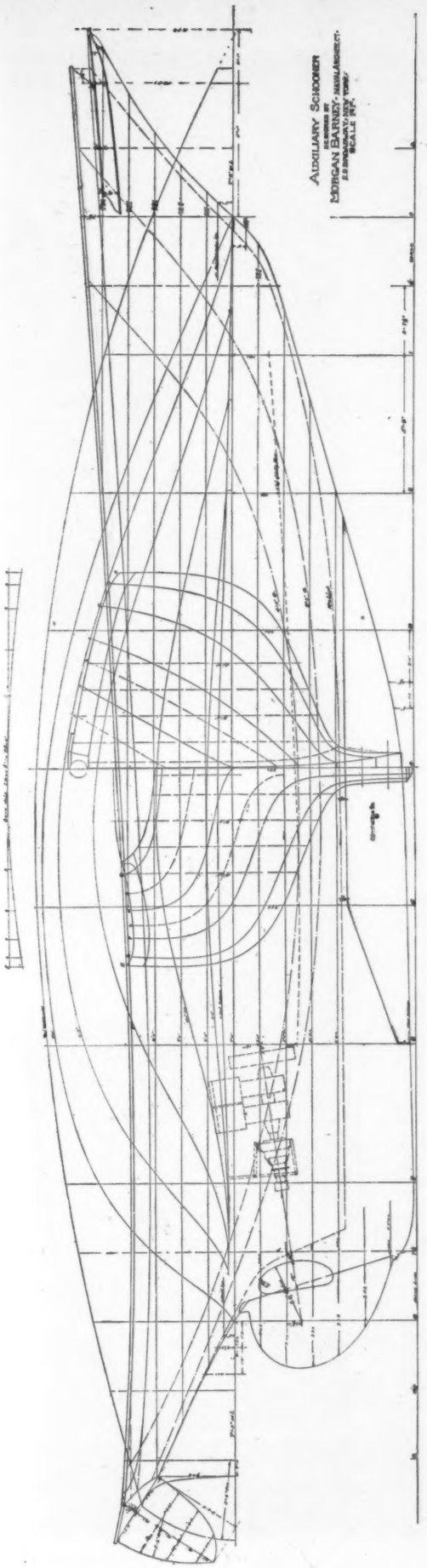
FOR A NUMBER OF YEARS VIGILANT HAS BEEN UNDER YAWL RIG.

Lord Dunraven, while accepting the result of the series, was not altogether satisfied that Vigilant was the swifter boat, and many Americans were in a similar frame of mind, holding that the first race had been won by a fluke, Vigilant catching a shift in the wind before Valkyrie, and in the third race profiting by Valkyrie's accident. The second race was won cleanly on its merits and was beyond the pale of any uncertainty. But still, the cup series had been won, and Vigilant had won it—that was the main point.

Later in the year she was purchased by George J. Gould, who, with Capt. Hank Haff, formerly of Volunteer, as captain, took her over to England in the summer of 1894. All in all, we should like to forget that summer, not only because Vigilant lost a majority of her races, but because of the bad feeling which the British sporting public, justly or unjustly, eventually evinced toward Mr. Gould. Vigilant's first race was on July 5, in which the Prince of Wales' cutter Britannia defeated her for the Muir Cup. In the race for the Queen's Cup, held under the auspices of the Royal Clyde Yacht Club on July 7, Britannia again beat Vigilant by more than a minute. On July 9, 10, 11, 12 and 16 Britannia was victor in races sailed on various waters of England, Scotland and Ireland. Vigilant won her first race at Belfast, a contest held under the auspices of the Royal Ulster Yacht Club, on July 17. There was a strong wind that day. Britannia won at Dublin on July 20, and so it went, the final count standing seventeen victories for Britannia to five for Vigilant. She raced three times while abroad with the cutter Satanita, winning twice and losing once.

Mr. Gould at one time attributed his defeats to sailing in landlocked waters, and, it was reported, at one time contemplated a refusal to race any more within headlands; but the intimation of a Scotch newspaper that he was funking so nettled him, according to reports then current, that he decided to complete the races scheduled. Later, he refused Lord Wolverton's offer of a purse for a race against Britannia on the open ocean, the course to be 15 miles to windward and 15 miles to leeward. The English newspapers and periodicals were filled with comment, not a little heightened when Mr. Gould announced that Britannia must race Vigilant for the Cape May Cup or forfeit it to him. It appears that Britannia had lost three men from an overturned dinghy, and the Prince of Wales, because of this mishap, announced the withdrawal of his boat from further racing that season. Britannia, he said, would not meet Vigilant for the Cape May Cup unless Mr. Gould insisted upon it. Mr. Gould remarked forcibly that he certainly did insist; but later he changed his mind.

It was by no means a good year for the sloop, and her chief claim to glory in that time was her record in crossing the ocean—14 days 8 hours—which for many years was unbroken. She was purchased from Mr. Gould by Percy Chubb, who converted her into a yawl and raced her successfully against the British jiggermaster Ailsa. She then passed into the hands of William E. Iselin, who now owns her, and in whose possession she has been seen in commission on Long Island Sound nearly every summer and taken part in many N. Y. Y. C. cruises.



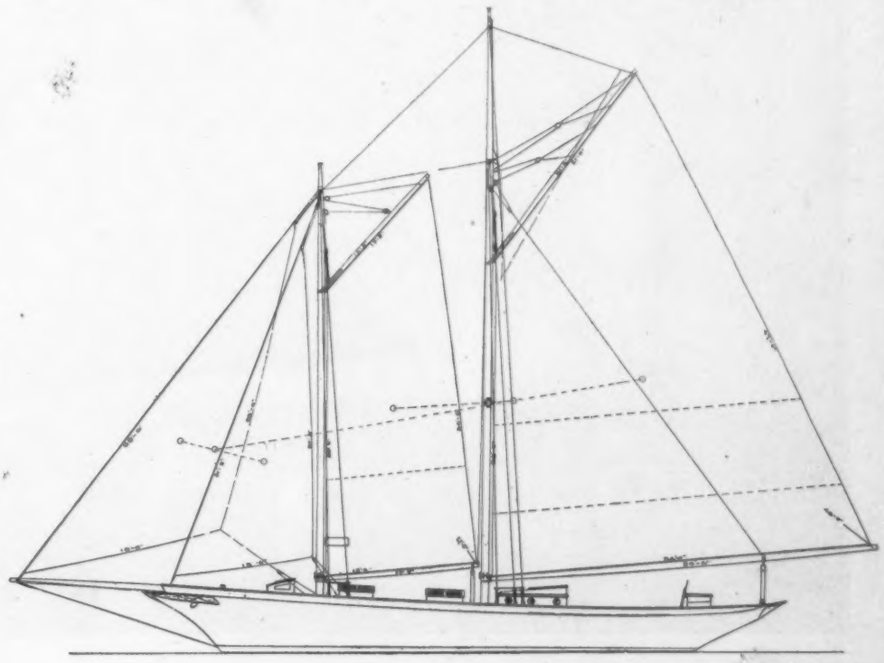
A 43-Foot Waterline Auxiliary Cruising Schooner

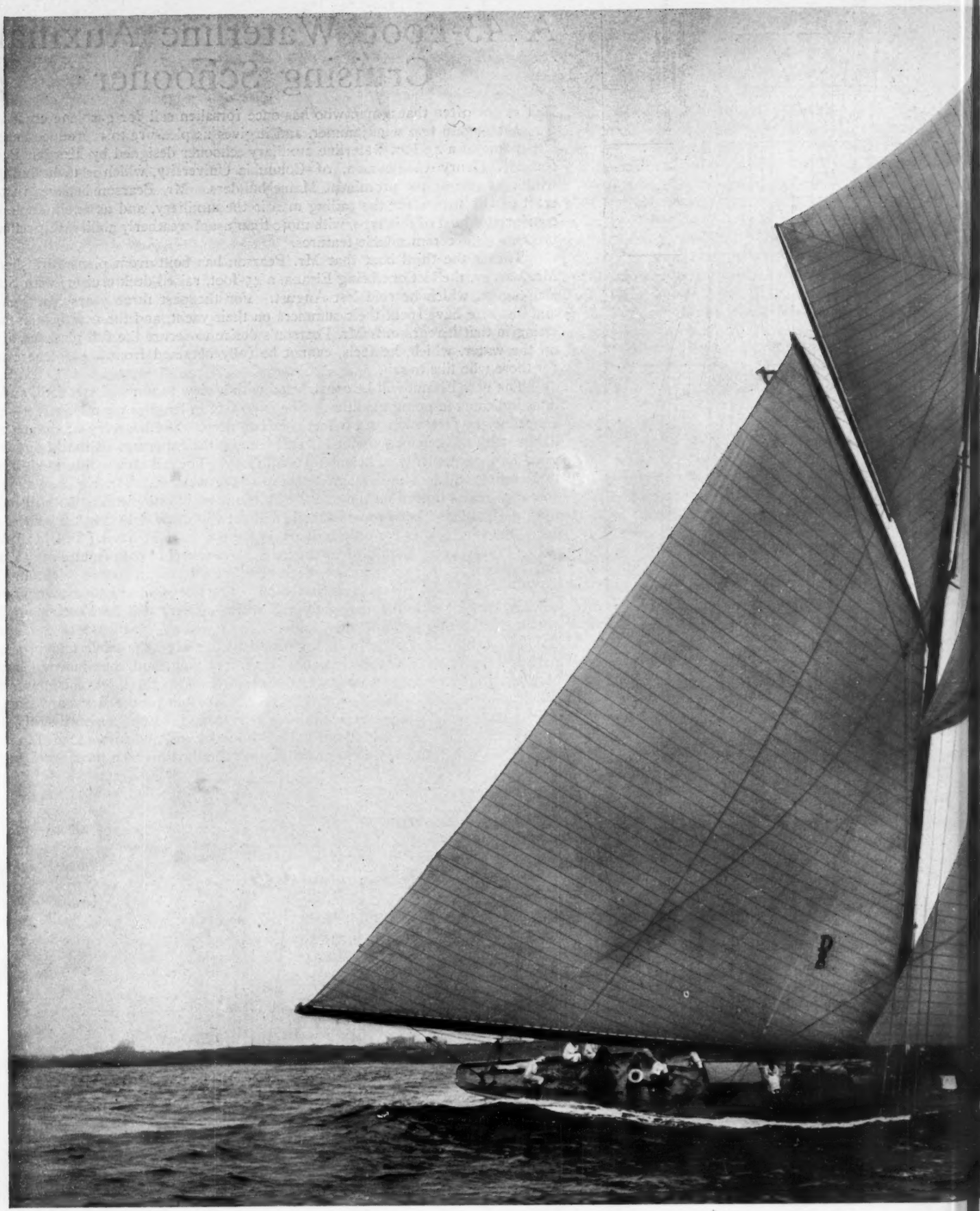
IT is not often that a man who has once forsaken sail for gasolene craft turns back again to a windjammer, and it gives us pleasure to reproduce here the plans of a 43-foot waterline auxiliary schooner designed by Morgan Barney for Mr. Henry C. Pearson, of Columbia University, which is to be built this winter by one of the prominent Maine builders. Mr. Pearson believes that the craft of the future for the sailing man is the auxiliary, and as an example of a comfortable boat of this type, with more than usual weatherly ability, this schooner presents some commendable features.

This is the third boat that Mr. Pearson has built from plans furnished by Mr. Barney, the last one being Elsana, a 45-foot, raised-deck cruiser, with Standard engine, which he sold last August. For the past three years Mr. Pearson and his wife have spent their summers on their yacht, and the new boat is interesting in that it represents Mr. Pearson's desire to secure the full pleasure of life on the water, which, he feels, cannot be fully obtained from a gasolene cruiser for those who like to sail.

The new Elsana will be constructed with a view to unusual strength, and her lines indicate sea-going qualities. She is 56 feet in length over all, 43 feet on the waterline, 15 feet beam and 6 feet 9 inches deep. She has very moderate overhangs, with a clipper bow which is still seen on the fishermen of the Maine coast, good freeboard, plenty of beam and a full body. The sail area will be moderate, so that reefing will be unnecessary except in heavy weather. The rig shows a short foremast and a topsail on the main, with the mast in one piece. She will have a flush deck and full head room beneath, and yet will draw only 6 feet 9 inches. So far as known, this is the only boat of so light a draught having full head room under a flush deck. Details of construction show a keel of oak, frames of oak 2 x 4 inches, deck beams 3 x 3 inches, deck planking of pine, 2 inches thick, and hull planking of yellow pine 1¼ inches thick. Outside finish will be mahogany, with interior of cabin in mahogany and white. There will be 16,000 pounds of outside ballast and 5,000 pounds inside.

The cabin plans show a motor placed as far aft as possible and in a compartment by itself. The main cabin is 11 feet long, and contains two built-in berths, with two transoms in front, and also a full-length closet, chiffonier, sideboard and writing desk. Forward of the main cabin on the starboard side is a double stateroom, 8 x 7 feet, containing bureau and closet. Opposite this stateroom is the toilet room, with the usual accommodations, and forward of this comes the captain's stateroom, which is used during the daytime as a passageway to the





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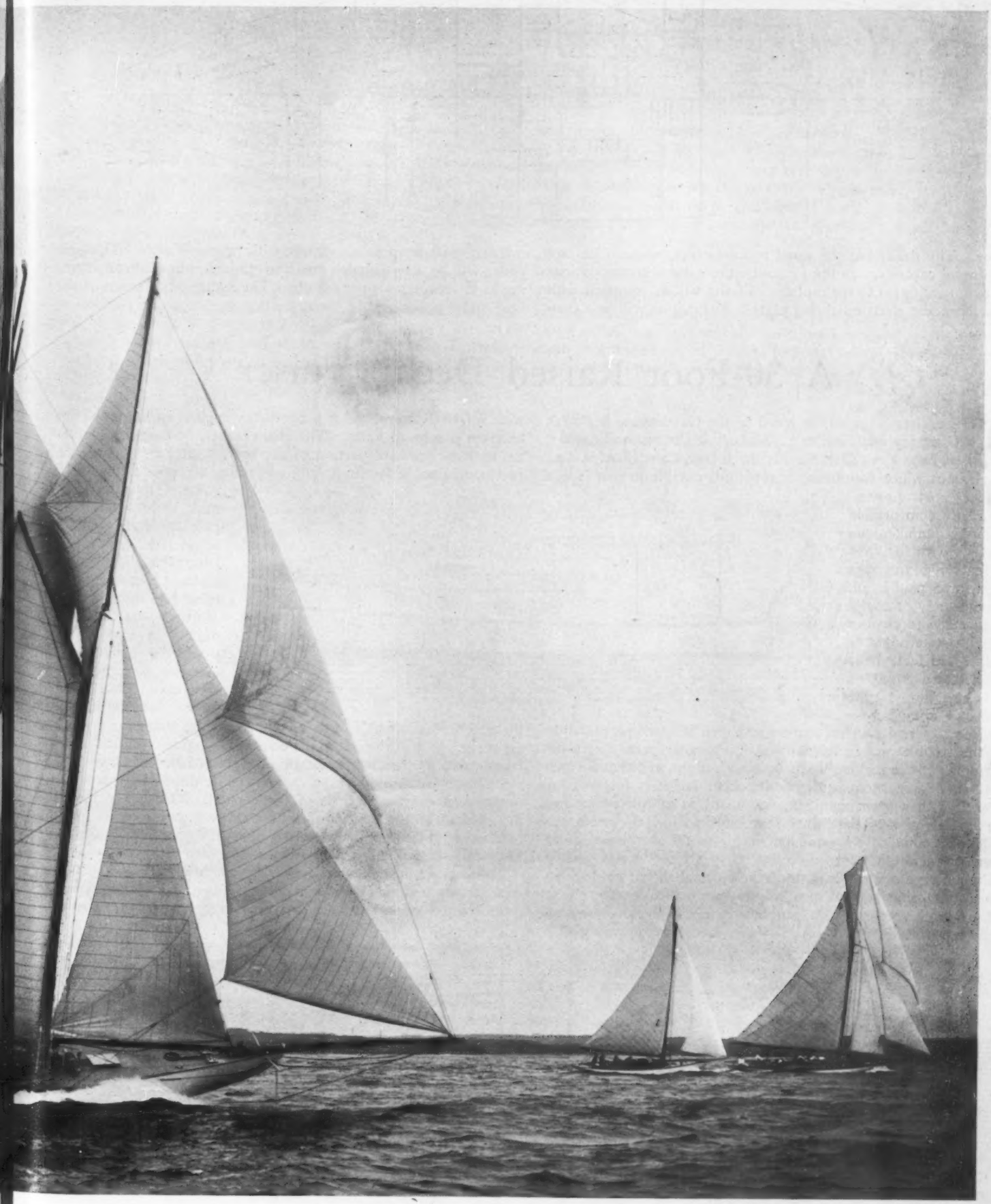
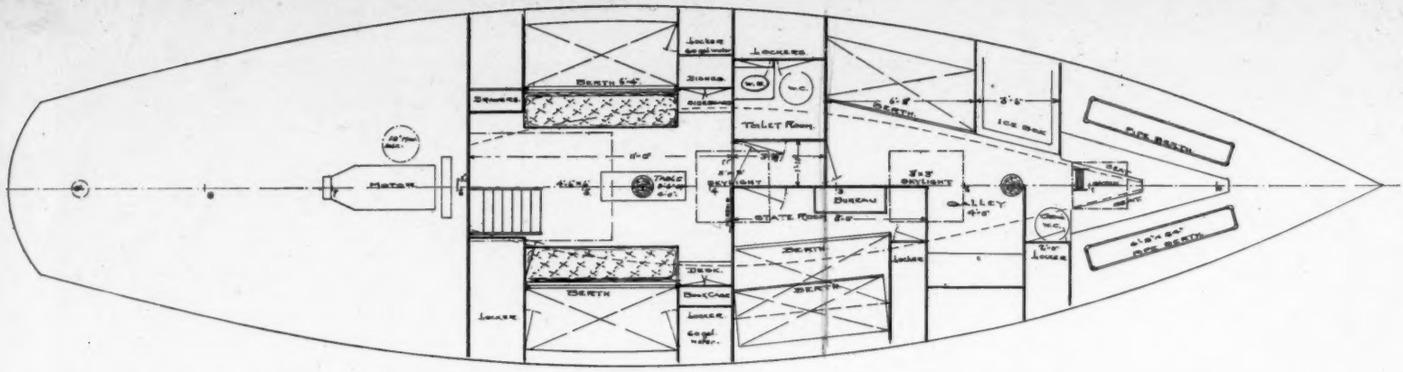


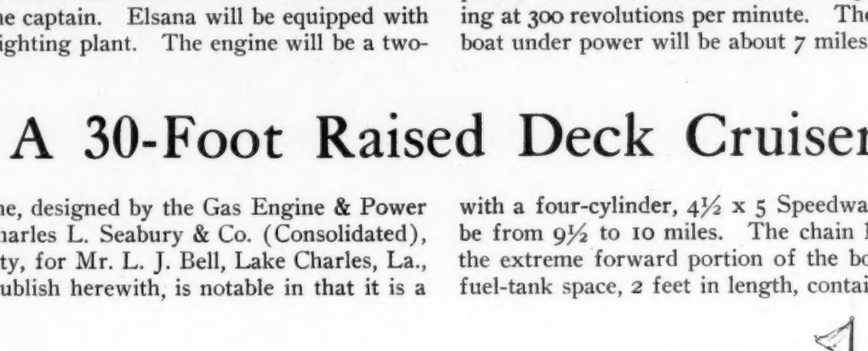
EL LEAVING NEWPORT.



galley. The galley has the usual appointments, with an ice box of unusual capacity. In the forecastle there are accommodations for two, in addition to the captain. Elsana will be equipped with an independent electric lighting plant. The engine will be a two-cylinder, 24-horsepower Lathrop, with reverse clutch. The propeller will be a two-bladed one, and 32 inches in diameter, turning at 300 revolutions per minute. The approximate speed of the boat under power will be about 7 miles.

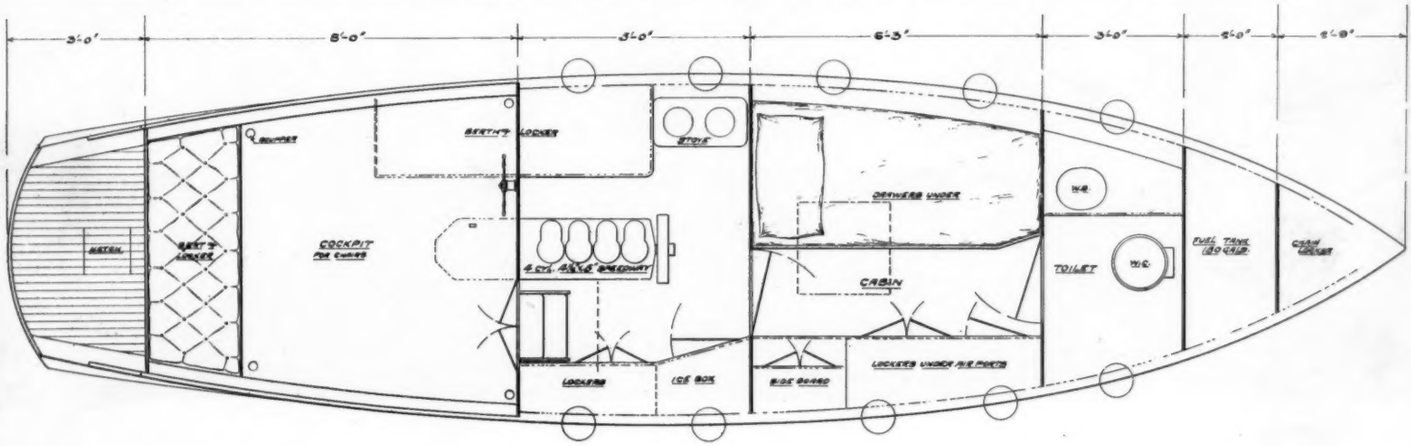
A 30-Foot Raised Deck Cruiser

THE cruiser Suzanne, designed by the Gas Engine & Power Company and Charles L. Seabury & Co. (Consolidated), of New York City, for Mr. L. J. Bell, Lake Charles, La., the plans of which we publish herewith, is notable in that it is a 30-foot boat providing really comfortable cabin accommodations for two, with facilities for carrying an extra guest, or a paid hand, without any attempt being made to cut her up with staterooms or berths. In fact, she is a concrete example of the realization of the fact that a moderate-sized boat of real comfort can be provided for two people without the trouble and inconvenience inseparable with extension transoms and the making up of beds each night, and that a really comfortable stateroom, with good storage facilities for wearing apparel, with a permanently made-up bed, is calculated to give more satisfaction to the owner than one in which an attempt is made to accommodate four or five people, to the sacrifice of every other consideration.



She has a plumb bow and stern, the latter slightly rounded, her dimensions being 30 feet over all, 29 feet 6 inches waterline, 7 feet 6 inches greatest beam, and a 2-foot draught. The speed, with a four-cylinder, 4½ x 5 Speedway engine, is guaranteed to be from 9½ to 10 miles. The chain locker, of course, occupies the extreme forward portion of the boat. After this comes the fuel-tank space, 2 feet in length, containing a copper tank of 150 gallons capacity. This tank is set in a drip pan, the latter having scuppers to drain overboard. The toilet room, 3 feet in length, extends the full width of the boat, and is lighted by two 6-inch round port lights. After this comes the stateroom, 6 feet 3 inches in length, on the port side of which is a berth 3½ feet wide, with drawers underneath. Aft of the stateroom comes the engine room, 5 feet in length, with ice box and lockers on the starboard, and a two-hole alcohol stove and a berth on the port side, the berth extending underneath the raised floor of the cockpit. There is 5 feet 8 inches headroom in the cabin, and the two ventilating cowls and a hatch over the stateroom materially assist the port lights—five on each side—in providing ventilation.

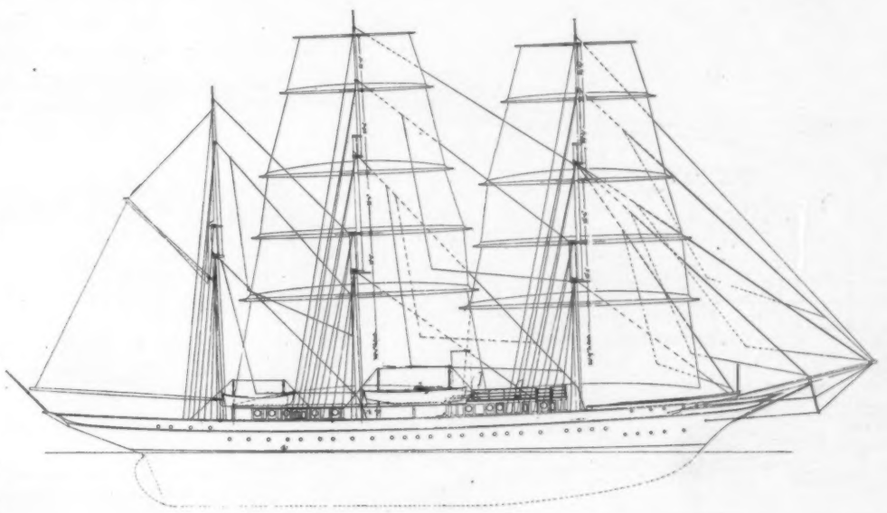
The cockpit is 8 feet in length, with a broad lazy-back seat, with lockers underneath, extending across the after end, the main portion of the cockpit being left free for chairs.



The New Aloha, Flagship of the New York Yacht Club

SO far as we know, no yacht has ever had the long and careful planning that was given to Commodore Arthus Curtis James' Aloha, the new flagship of the New York Yacht Club, before the contract was actually let. Nearly three full years before the placing of the contract with the builders the planning was begun, and in that time at least six different models have been made and more than six complete sets of plans.

At the end of two years' work on the plans by Messrs. Tams, Lemoine & Crane, and in order to leave no stone unturned to produce a perfect craft, Mr. A. Cary Smith was invited to act in consultation, and the vessel as she now stands represents a composite result of the ideas of Commodore James, with all his deep-sea experience, of his captain, and of the two firms, Messrs. Tams, Lemoine & Crane and Cary Smith & Ferris. The yacht is now nearing completion at the yards of the Fore River Shipbuilding Company, where the construction is being carried on under the supervision of Tams, Lemoine & Crane.



The new Aloha is 206 feet over all, 167 feet on the waterline, 35 feet 6 inches beam, 22 feet depth of hold and 16 feet draft. She is rigged as a bark, with double topsail yards. The height of the mainmast is such that she can just pass under the Brooklyn Bridge without housing topmast; in fact, the necessity of this has somewhat curtailed her spread of canvas. She has been designed exclusively for offshore cruising, and spreads, counting her light sails, over 20,000 square feet of canvas.

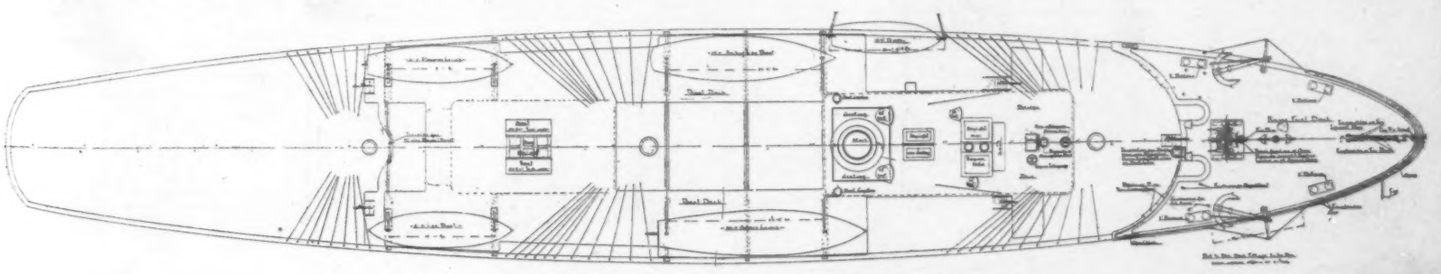
The hull is built of Bessemer steel throughout, of a tensile strength of 60,000 pounds to the square inch. She is to be classed at Lloyd's, and is built to their very highest requirements. The propelling machinery consists of two Almy watertube boilers and a triple expansion engine of 400 horsepower built by the Fore River Shipbuilding Company, which drives a feathering propeller built of manganese bronze, specially designed for this vessel by Messrs. Tams, Lemoine & Crane, who have succeeded in evolving a feathering wheel which is equal in efficiency to the best four-bladed wheels of the ordinary type. Her speed under natural draught will be a little less than 10 knots an hour, and under forced draught a little over 11 knots an hour.

The vessel will be fitted with the most up-to-date plumbing, with running hot and cold water and salt water throughout, including a bathroom for the officers. She is also equipped with evaporators, so that good, fresh water can be provided even on the longest cruises. A large electric plant is provided for lighting the ship, for decorating purposes, for running electric fans, etc. She is decked with teak, which, although it is slightly heavier than the ordinary pine deck, is growing in favor with modern architects, on account of its lasting qualities. All of the deck fittings, skylights, companionways, etc., are of selected teak. She has a steam windlass, and the sails and boats are all hoisted by steam, so that the number of sailors that have to be carried will not be much more than in some of our smaller schooners.

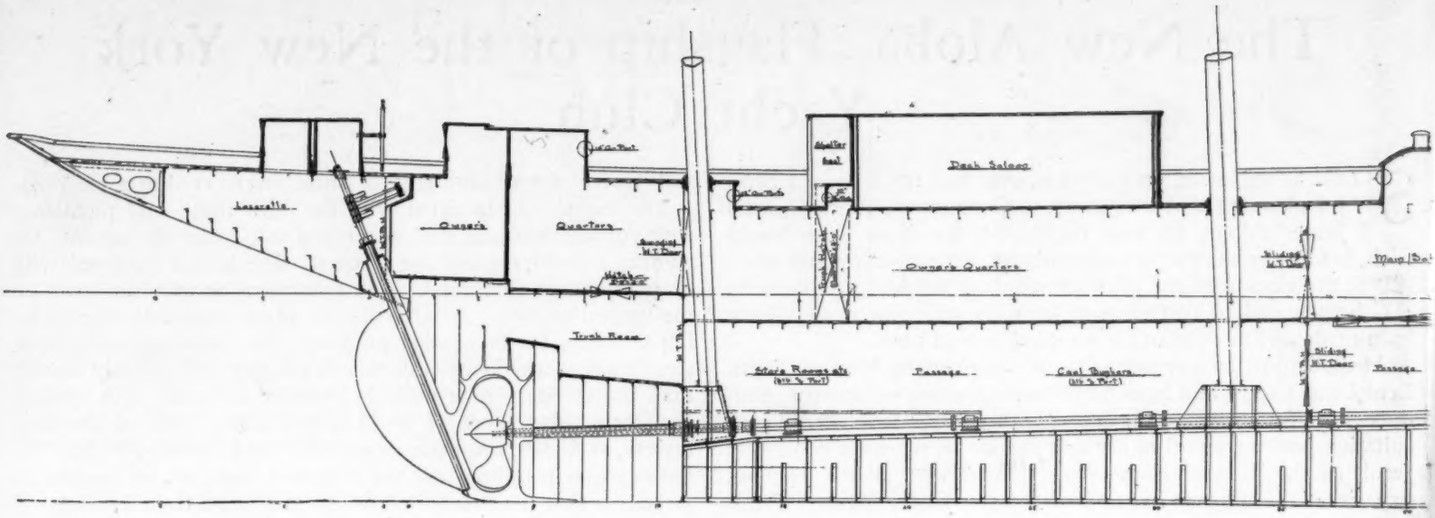
The canvas for the fore and aft sails has been especially woven by the famous Lowell Mills, and that for the square sails is of the very best English flax.

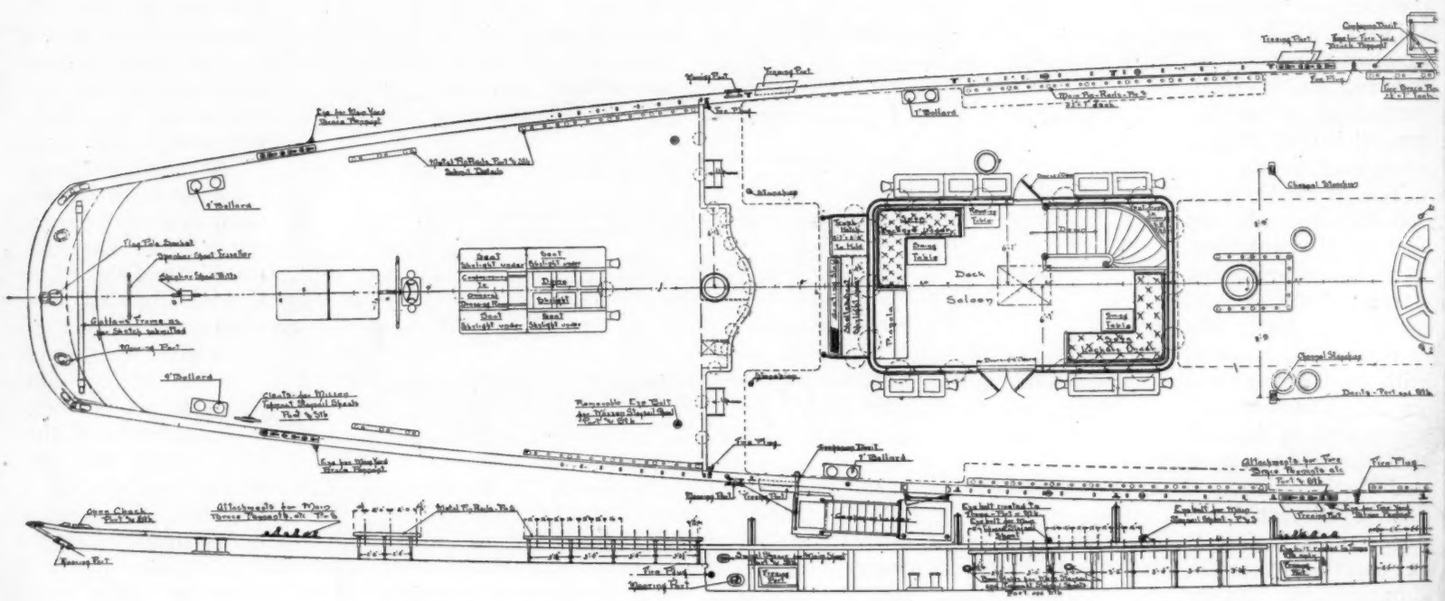
She has two large houses on deck, the forward part of the forward house carrying the wings of the flying bridge. In this forward house are located the galley, chart and smoking rooms and stairways to the officers' quarters and the store-rooms; also the engine and boiler hatches. The after house contains the main companionway, and furnishes a large, commodious deck room for the owner and his guests.

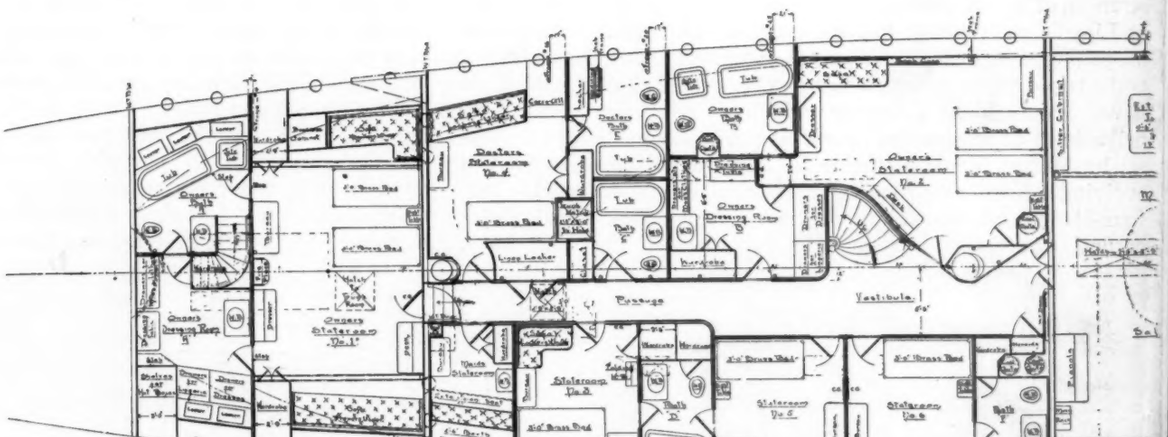
Below there are to be found six very large staterooms, in addition to rooms for a doctor, maid, etc., and four large bathrooms opening off of the staterooms. The owner's stateroom is aft, extending the full width of the ship, and communicating with a dressing room and his private bathroom, from which there is a separate companionway to the deck. Amidships there is a large hall, which leads to the main saloon, a room 32 x 17 feet. From this hall a circular stairway leads to the after deckhouse, while opening off it on either side are the various staterooms and a dressing room. On the port side, just aft of the main saloon, is another large stateroom containing two brass beds, 3 feet wide, desk, dresser, etc. Opening off of this is a bathroom and the large dressing room before referred to. The staterooms are all good-



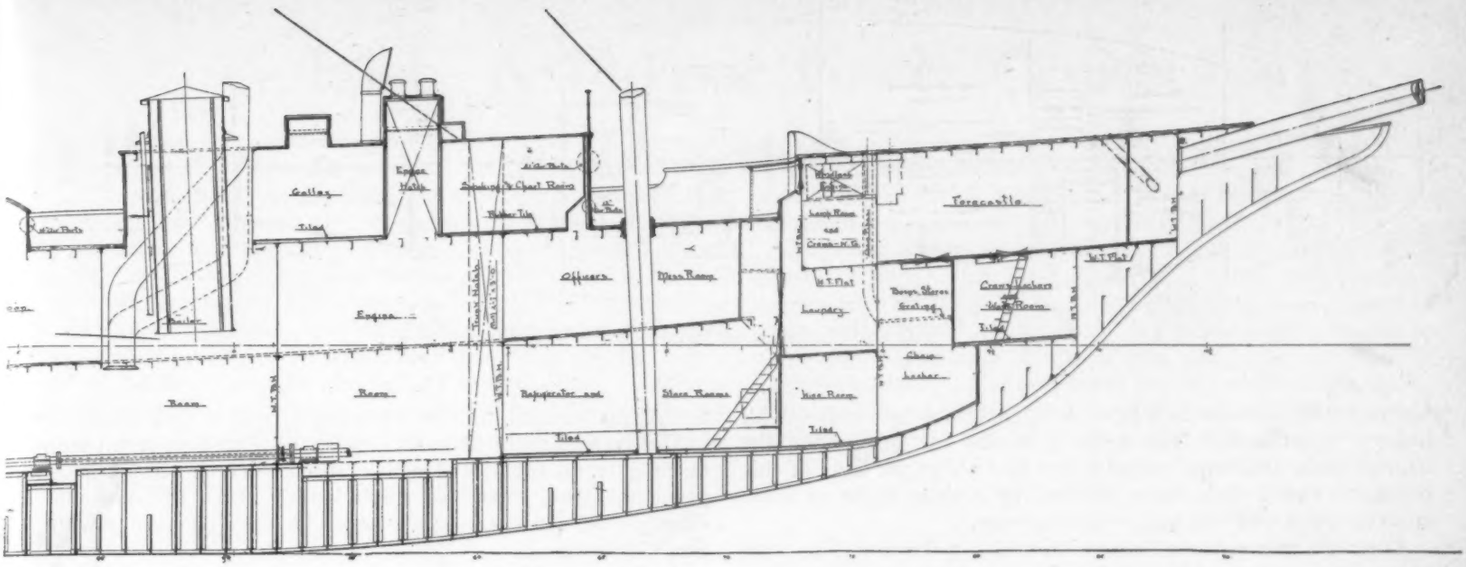
PLAN OF MAIN DECK, SHOWING DECK HOUSES AND FORECASTLEHEAD.

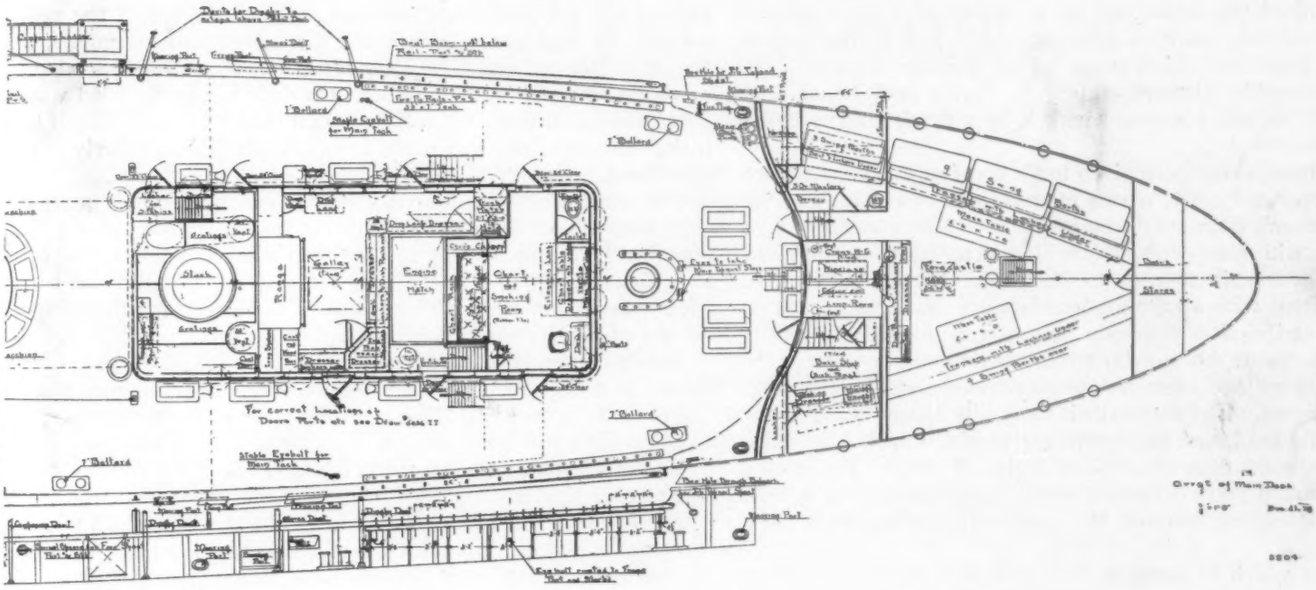


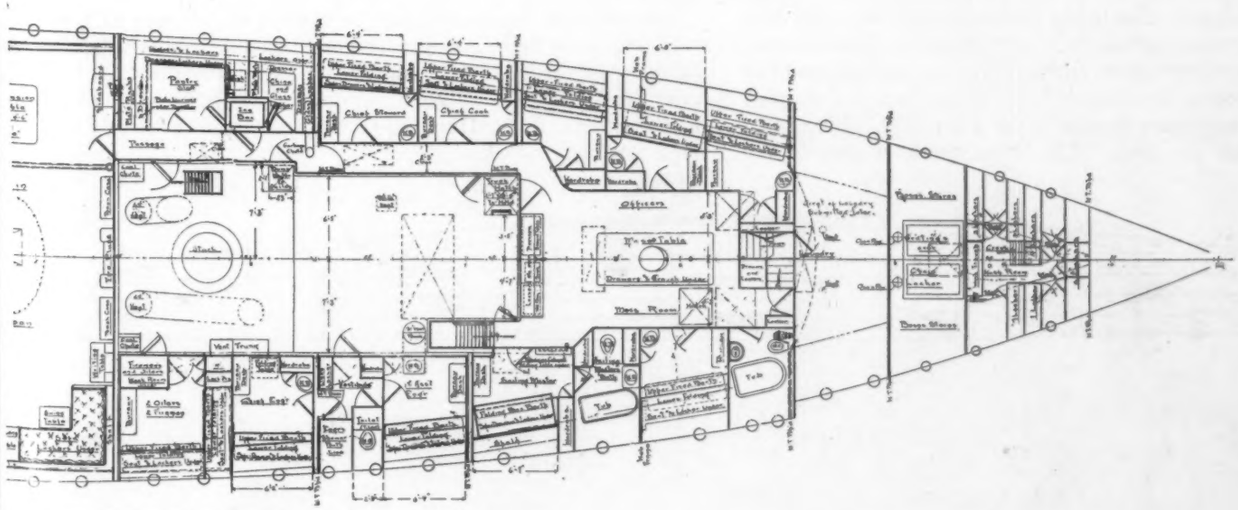




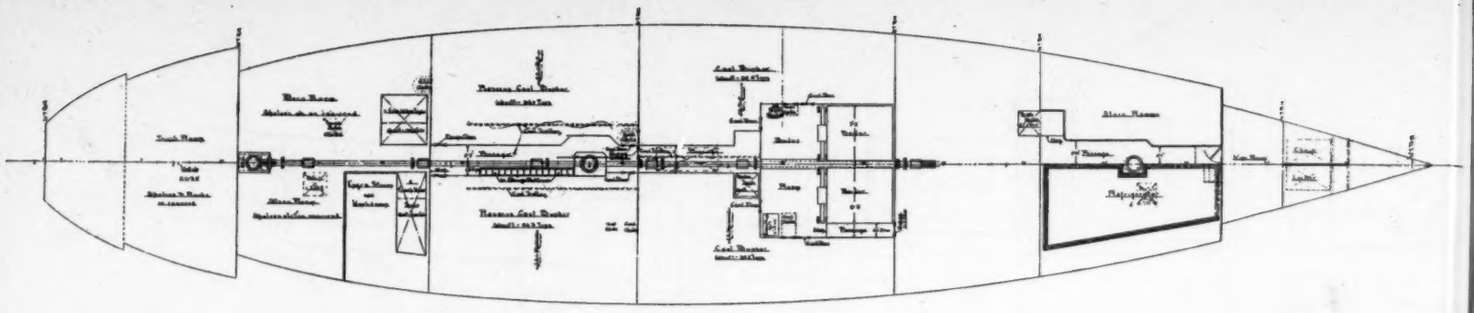
OUTBOARD PROFILE, MAIN







AND BERTH DECKS OF ALOHA.



PLAN OF HOLD.

sized and, in addition to a brass bed, contain 6-foot sofas, with lockers underneath. The owner's rooms aft are under the quarter deck, and hence raised a few feet above the level of this berth, or 'tween deck, being reached by a short flight of three steps at the end of this hall, or passageway.

The main saloon has an extension table on the port side, with sofas and a reading table on the starboard side, and the usual sideboards, silver cabinets, etc. There is also a pianola in this room. Just forward of the saloon, on the port side, is a large pantry, with dressers, sink, small ice box, etc., while just beyond it is a good-sized glass and china closet. Still further forward are rooms for the chief steward and chef. In the deck house, just over the pantry, and connected with it by a dumb waiter, is the large galley.

Special attention has been given to the comfort and convenience of the officers and crew, whose quarters are more comfortable than the owner's quarters on many yachts. The messroom is a large room, with sideboard, table with a drop light, etc., finished in teak. There is, in addition to the regular officers' staterooms, a laundry fitted with all the modern laundry machinery, such as washers, centrifugal driers, body ironers, etc.; in fact, this is the first real up-to-date dry laundry to be installed on any yacht.

The engineers' and firemen's rooms communicate directly with their department. The forecastle is unusually roomy, being under the forecastle head, and has berths for eighteen men. Entrance is from the main deck by a short flight of steps. The crew's locker and wash room is in a separate compartment on a deck below the forecastle, entered by a stairway leading from their quarters

A feature which is particularly useful for off-shore cruising is a sick-room, with a separate entrance from the deck, in which any member of the crew can be absolutely isolated from his fellows.

Below the berth deck the hold is unusually commodious, having over 7 feet of headroom, and being arranged with separate divisions for the different departments. The steward's hold forward contains the main refrigerators and storerooms for wet and dry stores. This is entered by a trunk hatch extending to the upper deck. The ship's stores are stowed in the after hold, with a separate entrance from the deck. The wine room is also in the hold, just forward of the refrigerator, and is tiled throughout.

The vessel's outfit of boats consists of a 30-foot steam launch burning liquid fuel, fitted with a specially constructed triple-expansion engine, a 21-foot ship's launch, three lifeboats and a dinghy. All these boats are being built by George Lawley & Son Corporation.

As the vessel is intended primarily for off-shore cruising, the boats are arranged to be housed on a boat deck, so that the main deck is left free and unencumbered for the working of the vessel and for a promenade deck for the owner and his guests, a feature which all who have been to sea in yachts will appreciate, as in the ordinary yacht off shore the deck is usually filled with boats and spare spars to such an extent that it is very difficult to make one's way back and forth, to say nothing of an orderly constitutional.

The main deck is broken at the after end by a raised quarter deck some 2 feet above the level of the main. This quarter deck contains the companionway to the owner's quarters and the wheel and binnacle. While under sail, the ship is steered from this after wheel, and, when under steam, is handled from the bridge on top of the forward deck house.

Another interesting innovation that will be found on board the Aloha is a fog-horn, operated by compressed air, to use when the vessel is under sail. This takes the place of the old-fashioned hand-power fog-horn at present in vogue on sailing vessels.

The coal bunkers are located in the hold aft of the boiler room, one on each side, and are filled by a chute from the main deck.

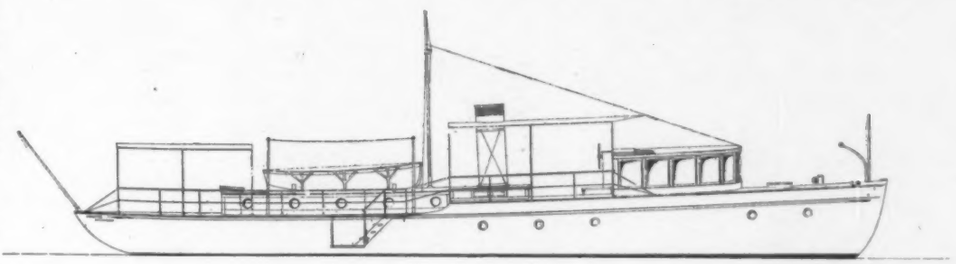
All the metal work about the deck is to be of white metal, which is non-corrosive, and therefore does not require the large amount of polishing of ordinary brass work. Heavy pin rails are located on either side of the bulwarks abreast of the masts for the braces, clewlines and the innumerable ropes and lines to be found on a square-rigger, while there are fife rails at the foot of each mast for the heavier halyards and sheets.

For off-shore cruising, it would be hard to conceive of a more comfortable or better adapted vessel than this, and with started sheets or off the wind she should prove fast under sail. The New York Yacht Club is to be congratulated on having its commodore's pennant flying from the truck of what will probably be the finest auxiliary afloat.

Igloo—A 78-Foot Power Cruiser

THE twin-screw cruiser Igloo, recently built for Mr. J. K. Stewart, of Chicago, is one of the Electric Launch Company's latest productions, and represents a modern type of cruising power boat. Her length over all is 78 feet, with the liberal beam, for her length, of 14 feet, and extreme draught of 4 feet. A glance at the plans, which we reproduce herewith, will show what a comfortable and able craft she is.

The hull construction is of the highest grade, with substantial oak keel 8 ins. by 10 ins., and oak frames 3 ins. by 2 ins., spaced 12 ins. from the centers. The hull frame is further strengthened by heavy yellow pine keelsons, stringers and clamps. The planking is of selected long-leaf Georgia pine, finished thickness 1½ inches, securely fastened to frames with copper nails riveted over copper washers, the fastenings throughout the boat being of copper and bronze.



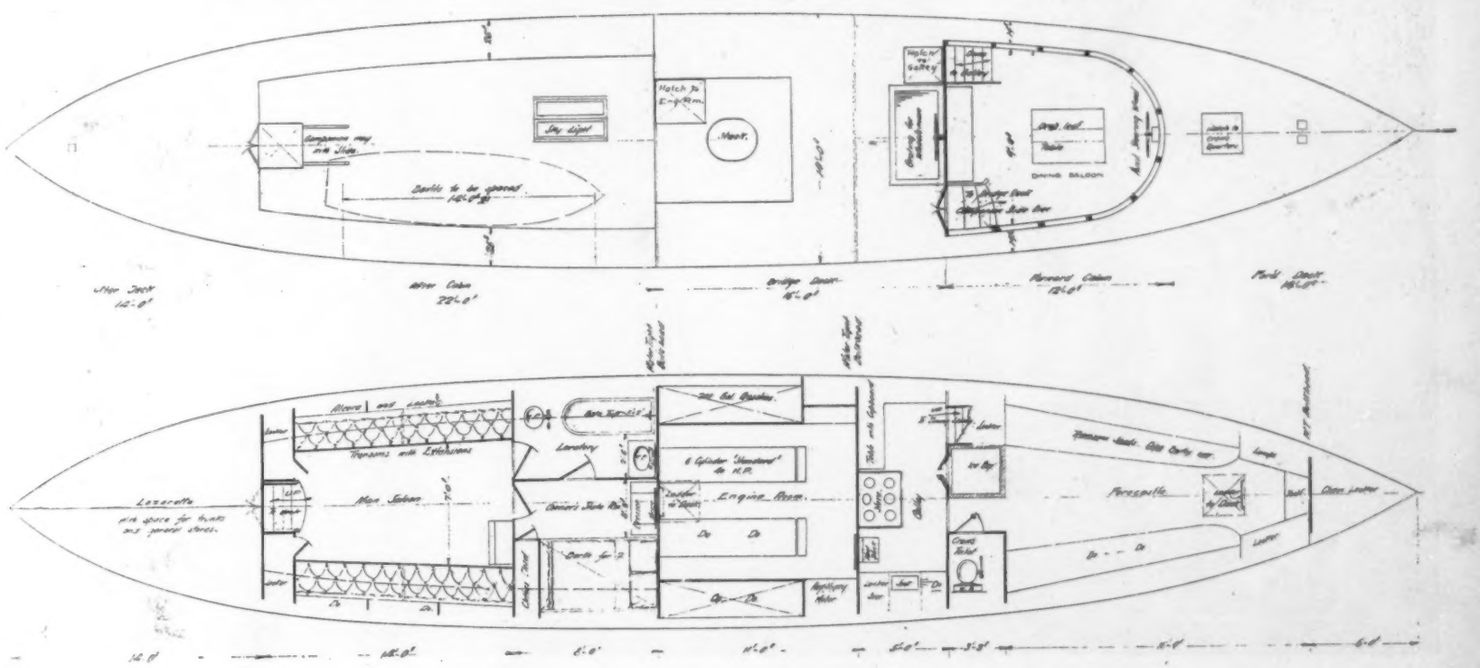
The hull is divided into four watertight compartments, forward, amidships and after bulkheads being double, of diagonal construction, and absolutely watertight. The decking is of white pine laid in narrow strakes, while the outside of cabin house is finished in selected mahogany. The lumber used in the construction of the hull is of selected seasoned stock, insuring the best results. The hull is copper-sheathed to the waterline, which protection is desirable for cruising in Southern waters. The mahogany is unusually rich, being from the selected stock of the builders, who carry on hand from 50,000 to 100,000 feet, which is purchased by them directly from the mill in log form, the planks from each log being separately marked, so that the color and grain can be perfectly matched.

Unusual deck space is provided both forward and aft, as may be seen from the photographs. The bridge deck, from which the boat is steered in fair weather, contains 150 square feet, affording room for eight or ten wicker chairs and a settee. The side decks permit of access to any part of the boat, and there is, in addition, a large after deck for deck chairs.

The cabin arrangement of this boat is unique and unusual, and illustrates clearly that the builders had in mind the provision of comfortable sleeping accommodations for the owner, guests and crew, with ample room for the power plant, making distinct and separate compartments for forecastle, galley, engine room and owner's quarters. The practice in the past of sleeping and cooking near the engine has not proved satisfactory to those who desire the same comfort while afloat that they are accustomed to ashore.

Another feature of this boat is the deck dining saloon forward in the pilot house, where six can be comfortably seated at table and have a commanding view of the surrounding waters. The windows drop into pockets, giving the best of ventilation. It is not necessary to state that there is no comparison between a dining saloon on deck and one below, as yachtsmen have learned that the pleasure is greatly enhanced if light and cool cooking and dining quarters are provided. This saloon is handsomely finished in selected mahogany, with paneled ceiling, handsome paneled mahogany sideboard, etc.

Just aft of the dining saloon, and below decks, is located the galley, which is of unusual size, and is reached from the inside by a stairway. The galley extends the full width of the boat, and special attention has been given to its equipment, there being a six-hole "Shipmate" coal stove, large cupboards for storing dry groceries, porcelain sink with lockers underneath, and a hot-water boiler connected with the stove, supplying warm water through-



SOME VIEWS OF IGLOO'S INTERIOR.

Deck Dining Room and Pilot House.
Bath Room, looking forward.

Owner's Stateroom, looking forward.

out the boat. A large ice chest, holding 300 pounds, is ingeniously located under the floor of the dining saloon. A hatch from the bridge deck permits of direct entrance into the galley without going through the dining saloon. Forward of the galley are the crew's quarters, under the pilot house and forward deck, pipe berths being provided for four men.

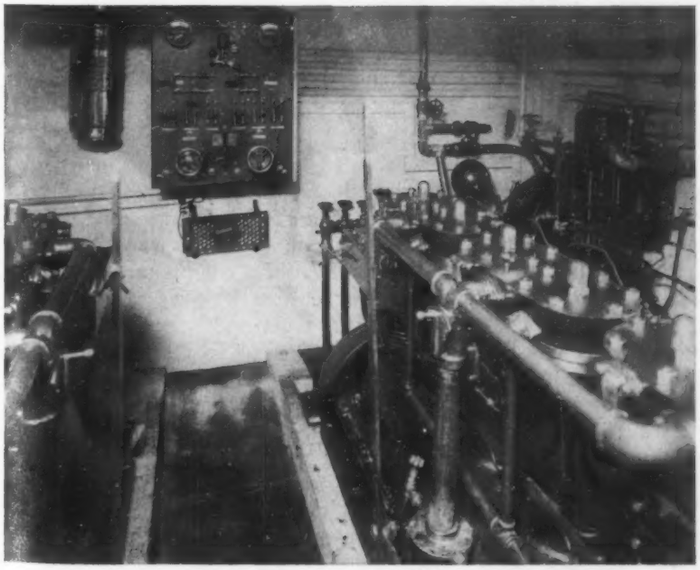
Aft of the galley, and entirely separate from it, is the engine room, in which are installed two 6-cylinder, 40-horsepower Standard motors of right-and-left pattern, and an independent electric light plant and generator. Here, also, are the gasolene tanks, with a total capacity of 450 gallons. Special care was taken in the installation of the tanks, which rest on a firm foundation above the waterline, with copper pans underneath, draining overboard. The tanks are filled direct from the main deck outside, and can be removed, for inspection, in a half-hour's time—an important detail often overlooked by builders. The independent electric light plant furnishes power for the bilge pump, which is connected by manifold with brass pipes leading to the various watertight compartments, enabling the engineer to pump out any compartment in the yacht. The exhausts from the engine are carried up into the stack and are effectually muffled, so that there is no noise in the operation of the motors.

The engine room is finished in oak, painted, and is unusually spacious, there being ample room to examine the engines from all sides. A work bench, with vise and the usual equipment of tools, is provided. The engine-room hatch is portable, for convenience in removing the motors when necessary.

The owner's quarters are aft of the engine room, his own stateroom being finished in white enamel with mahogany trim, and containing a large double berth, with spring and hair mattresses and drawers underneath, a large mahogany chiffonier and hanging clothes closet. A skylight above and two ports on the side give excellent ventilation to this room. The bathroom opens off of the owner's quarters, and is of unusual size. The floor is covered with porcelain tiling, and there is a large porcelain tub. The main fresh-water tanks, holding 300 gallons, are under the after deck. By means of an electrically-driven water pump, with a supply tank on deck holding 100 gallons, the fresh water is carried to the fixtures throughout the boat by gravity. This enables the owner to draw either hot or cold fresh water for his bath, or, by a special attachment, salt water.

THE GALLEY, STARBOARD SIDE.

BRIDGE DECK AND COMPANIONWAY TO PILOT HOUSE.



ENGINE ROOM, SHOWING THE TWO ENGINES.

The after saloon, or sleeping quarters, are unusually attractive, being finished in selected mahogany. This cabin is fitted with four transom berths, which sleep four very comfortably, and has a mahogany bookcase and desk and full-length clothes closets. For use during the day this room is made attractive with wicker furniture and handsomely upholstered settees. Under the after deck plenty of space is provided for the storage of deck equipment, as well as steamer trunks, it being possible to stow here three steamer trunks in racks specially prepared to receive them.

The boat is lighted throughout by electricity, with reserve supply of storage batteries. She carries one power dinghy of 15 feet, which is of light construction and has a gasolene motor.

On a recent trial trip in New York, the seaworthiness of the yacht was most apparent. She was exceptionally steady in a seaway. She steers easily, the boat turning in a very short radius. The builders guaranteed a speed of 12 miles per hour, and the boat showed a better speed than 13 statute miles on her trials.

EDITORIAL

Published by the Yachting Publishing Co.; Oswald Garrison Villard, President; Herbert L. Stone, Secretary and Treasurer.

For Proper Motor-Boat Legislation. We have had occasion to comment several times in these columns upon a bill now before Congress that was drafted last year by a committee appointed to revise the navigation laws relating to safety of life at sea. The defects of this bill are well known to all users of power boats and to all who are familiar with the navigation of our rivers, harbors and lakes, and need not be dwelt upon here. In fact, so many flaws have been found in the recommendations the bill puts forward that it seems unlikely that this bill will become a law, at least as it stands at present. But realizing that some sort of government regulation is bound to come in the near future, and that only by definite and concerted action can proper legislation be assured, the National Power Boat Association issued a call for a meeting to be held in New York, December 1. This meeting was a thoroughly representative one of all bodies interested in the sport or industry, there being present, in addition to those responsible for the gathering, delegates from the American Power Boat Association, Western Power Boat Association, Pacific International Power Boat Association, National Association of Engine and Boat Manufacturers, New England Association of Engine and Boat Manufacturers, American Association of Engine and Boat Manufacturers and the Marine Supplies Association of America.

It was the sense of this body that, in any future legislation affecting the sport, power boats or craft propelled by internal-combustion engines should be considered by themselves and not be classed as steam vessels and made amenable to the laws governing the same, as has been the case heretofore whenever regulations have been considered.

This is as it should be, and is a wise suggestion. To try in any way to make the rules relating to the operation and equipment of steam craft (most of which are used for commercial purposes) stretch so as to cover pleasure craft of under 50 feet with gasolene motors, which may be operated by the owner himself, can never result in a law that will adequately serve both ends and give satisfaction. The types must be considered separately and rational requirements drafted for each.

To the end that such rational laws may be enacted and to assure a proper consideration of the rights of the small-boat owner, it was decided to form a national commission to watch legislation and, if necessary, to formulate such recommendations as are deemed wise and sufficient to safeguard life and property without being detrimental to the sport. This commission is to be composed of five delegates from each of the organizations represented at the meeting and other organizations in sympathy with or interested in the promotion of the sport. A national commission of this size will undoubtedly make its weight felt in the consideration of any legislation by Congress.

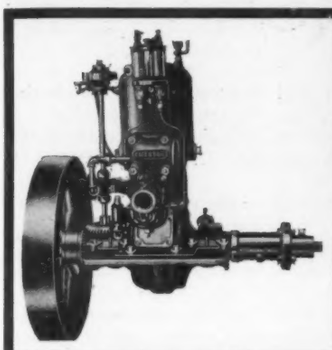
There is a disposition on the part of a vast majority of power-boat users to submit willingly to and comply with any federal regulations on the matter of equipment and registration, but they do feel that such regulations must be rational and must fit the size and type of boat they aim to cover. It now behooves every motor-boat owner to give his support to this commission just appointed.

International Racing. Now that the talk of an America's Cup race has simmered down with the departure of Sir Thomas Lipton from our shores, and the glare from his flash in the pan has died away, we may impassionately consider the possibilities of other international racing. With the unqualified success of the *Sonderklasse* racing with Germany, the prospect of the Canadians coming down after the Seawanhaka Cup next year, and the growing interest these small-boat affairs has aroused, one wonders why it should prove so difficult to arrange a meeting between English and American small boats. With this laudable end in view the Atlantic Yacht Club offered a trophy for an international race in the 8-metre class (measuring about 25 feet on the water and equivalent to our Q class), and agreeing to build some boats here under their international rule of measurement if they could get some English yacht club to challenge and come here to race, intimating that two years later they would go to England for a return series.

The English yachting magazines, and especially the "Field," through which the offer was made, have long been excoriating us for not being a party to or adopting the international rating rule, and it would have seemed that here was a chance to convince us of the error of our ways that would be eagerly accepted. But instead, the "Field" proceeded to throw cold water on the scheme and advance reasons why this could not be brought about, among them being that there is no official measurer of the International Yacht Racing Union in this country, and that our clubs are not recognized by the national authorities affiliated with the International Yacht Racing Union, and hence that no member of our clubs could take charge of any yacht in a race under international rules. These obstacles do not seem to us to be insurmountable or worthy of serious consideration.

The "Field" also goes on to say: "At the present time yacht racing in the United States seems in a state of chaos. We are told that the racing there is under the Universal Rule, but when we investigate we find that the America's Cup cannot be sailed for under the rules of the club which holds it, because of the deed of gift." True enough, as far as the latter statement goes; but yachting here is far from being in a state of chaos. We doubt if England can show anywhere as good racing with as many starters as on our Atlantic seaboard and the Great Lakes under the Universal Rule. From 50 to 115 starters in most of the regattas is a record hard to beat. Since the present rules were formulated the sport has grown steadily and healthily. As regards the N. Y. Y. C., the "Field" must not forget that it gives races only for yachts owned by members of the club, and hence, while it is a large club, its racing must not be taken as representative.

The result of such a series might have opened the way to the adoption of a rule that would be truly universal inasmuch as all nations interested in yacht racing would be a party to it. The Atlantic Y. C. saw this, and has endeavored to bring it to pass. They might have done better if they had opened negotiations with some English yacht club instead of through the "Field." The opportunity was also here presented for a resumption of racing relations with England, from which much good should have come, as the boats would undoubtedly be handled by Corinthians.



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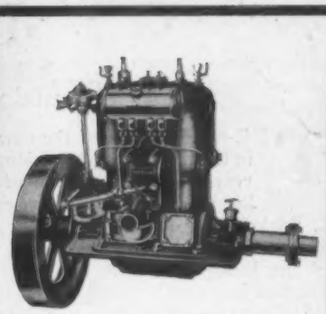

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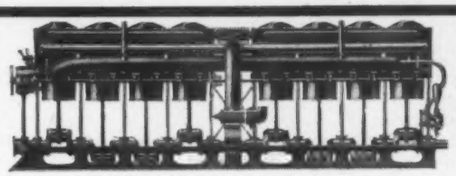

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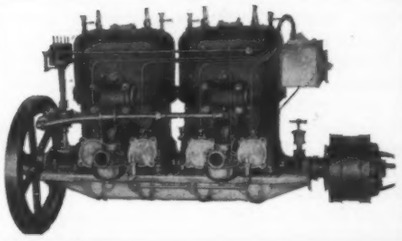

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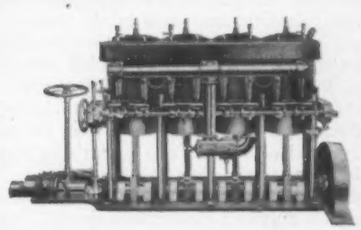

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Driftwood from Along Shore

Buffalo, N. Y.

THE opening days of the new year will find the Buffalo Yacht Club in the throes of an election, to take place on January 8. For some years past the selection of officers has been rather a tame affair, but this time there is to be at least one red-hot contest. Clarence L. Buckpitt and Edward N. Smith are striving for the office of vice-commodore, which, by unwritten rule, carries with it the duties of chairman of the house committee and plenty of work. The candidates are well matched in popularity, and they are warm, personal friends. Mr. Buckpitt served as vice-commodore two years ago, and went out of office amid the plaudits of the club. He is well known to yachtsmen, not only of Buffalo, but in all the ports up the Lakes, particularly Erie and Detroit, where he made quite lengthy stops while cruising in his yacht Tomahoc last summer.

Mr. Smith is skipper of Swastika, a crack racing boat, and he has been an active yachtsman for years. In business life he is superintendent of the Buffalo Drydock Company, and he is known as a man of energy and executive ability, who would be likely to stimulate energy in the club.

Commodore Edward Michael has consented to serve another term, and he will be re-elected without opposition. His reason for carrying on the duties as head of the club, that he has already borne for three terms, is that he may complete some of the things that he has begun. These include extensive improvements on Point Abino, about 10 miles up the Canadian shore; the moving of the club house, to make room for the new city pumping station, and some minor matters. The Point Abino improvement is one of the most important matters before the club just now. Several years ago the directors of the club saw the need of having some objective point for their cruises, so they purchased about 2 acres of sand hill on the Canadian shore west of Crystal Beach, and on it erected a shelter house of medium size. This quiet little spot, far away from the city, grew in popularity until on almost any warm day you would find more people at the shelter than at the club house.

But two years ago the yacht club lost its little Canadian home through fire. A temporary shelter was erected, but it has never been large enough, and the yachtsmen have set their hearts on a large and thoroughly modern club house on the Point. The first step toward this end has been taken by the purchase of 15 acres of land on Point Abino. The tract takes in both sides of a high sand hill, and gives a fine building site. In fact, one would think the hill had been designed by nature for a yacht club, for it looks directly down upon a splendid anchorage, which is the only place within 50 miles up the lake that boats can be left with safety. Running out into the lake for 1,500 feet is an old pier, which, when rebuilt and a little dredging is done, will make a perfect landing. Whether ground will be broken for the new club house this year or next is not yet decided.

Besides this the club is confronted with the necessity of moving its club house at the foot of Porter Avenue. It is to be picked up bodily by the city, carried some 500 feet north, and deposited upon a new site which the State has granted to the club.

All the old officers, with the exception of the one contest noted, are to be re-elected. Robert H. Mason will continue as secretary, which office he has creditably filled for two years. Edward Oldman will be rear-commodore, an office created two years ago, and designed to give a motor boat man a place in the management of the club. Mr. Oldman is owner of the Angler, and is one of the most active motor-boating men the club can produce. Frank D. Wood will continue as measurer. He has held that position for years, and his experience has made him an authority. Dr. E. P. Hussey will fill another term as fleet surgeon. He is an old-time yachtsman, and there is hardly a type of boat that he has not handled. So far the nominees for directors are William J. Connors, Meredith Potter and Gilbert Klinck, and for the regatta committee D. A. Ellsworth, H. G. Smith and C. L. Sheppy.

The Buffalo Yacht Club suffered seriously in the storm of last month. The dock at the foot of Porter Avenue was washed away as well as the outside stairway, and the schooner West Wind was sunk as she lay moored in front of the house. She is owned by Chadeayne and Bodamer, who have raised her.

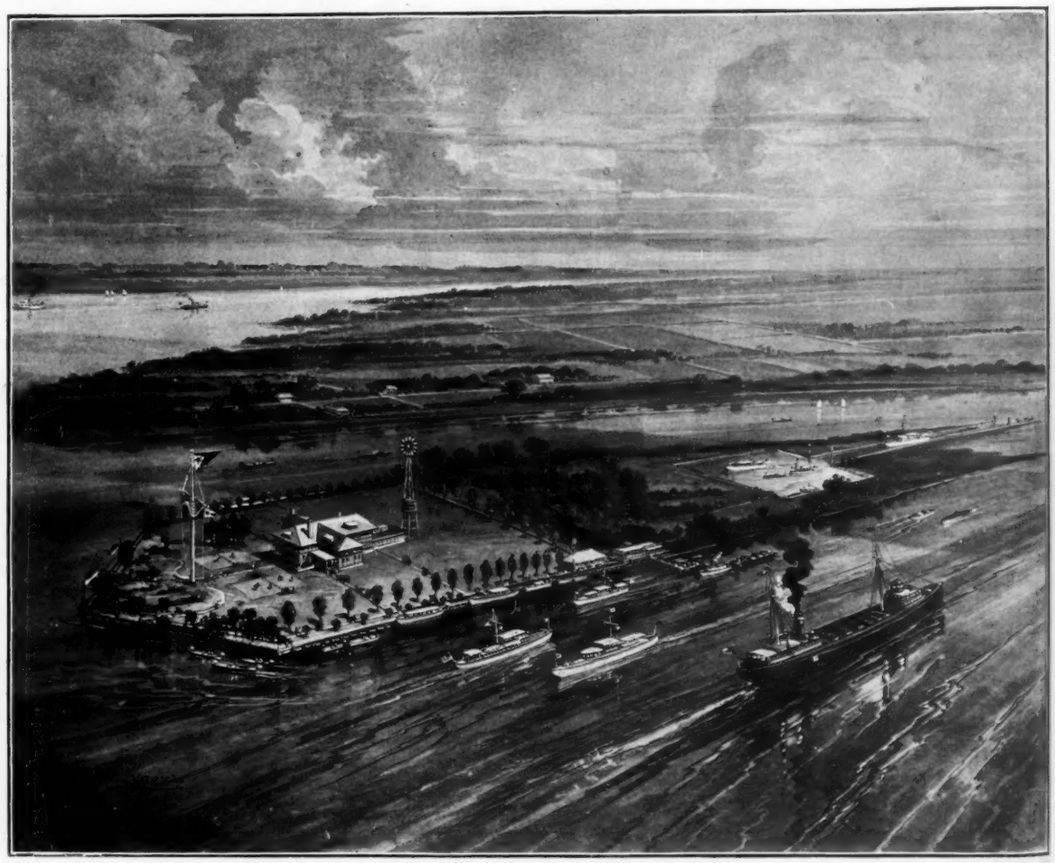
The Motor Boat Club of Buffalo expects to formally open its new home on Motor Island, Niagara River, sometime this spring, probably about Memorial Day. The building, erected to replace the one destroyed by fire, is now completed, and the task of furnishing is being pushed with all possible dispatch. The new building has cost the club $14,000, and it is intended to make it the most finely equipped and best managed club house in the United States. It was opened for inspection October 31.

It is a two-and-one-half-story frame building, with spacious verandas, and surrounded by pleasant grounds. The island, which is all owned by the club, contains 12 acres. Inside the club house is as complete as anyone could wish. On the first floor is a reception room, dining room, buffet and cloak rooms. Above are rooms for ladies, a director's room, billiard room, smoking room, private wardrobes and dormitories. In the rear of the second floor is the kitchen.

Besides the building of the club house extensive improvements are contemplated on Motor Island. Docks now extend around the entire island, and it is proposed to dredge out a large turning basin. A dancing pavilion is to be built, and no end of gardens and cement walks will be laid out.

The motor boat club has a membership of more than 300. It has 100 motor boats, ranging in value from $500 to $40,000. The annual election of officers will be held January 15. H. F. Koerner is at present commodore, and we are indebted to him for the excellent drawing and cut of the new house and grounds which accompany this letter.

The Niagara River at this point is an ideal place for motor boating. It is convenient to Buffalo, the shores are picturesque, and while the current is rather swift, it is not far to the mouth of the river and Lake Erie.



NEW HOME OF THE MOTOR BOAT CLUB OF BUFFALO ON MOTOR ISLAND, NIAGARA RIVER.

Peoria, Ill., Gossip

The Illinois Valley Yacht Club, of Peoria, will not have completed its third year until March, 1910, yet it successfully pulled off the 1909 regatta of the Western Power Boat Association in August and has more than $4,500 in cash and silver trophies already secured for the fourth annual regatta of the Mississippi Valley Power Boat Association, to be held there July 4, 5, 6 next. The Western regatta was probably the most notable ever held in the Mississippi basin. Hoosier Boy, of Rising Sun, Ind., first broke into national prominence at that regatta, defeating Scripps II, of Detroit; Independence, of St. Louis; Mascot, of Fort Madison, Ia.; Red Wing, from the city of that name in Minnesota, and Lamb IV, from Clinton, Ia. The last-named boat had won the championship of the Mississippi at the M. V. P. B. A. regatta in Burlington only a few weeks before. Forty thousand people are estimated to have seen these races, the fireworks and Japanese boat parade during the evening of the regatta.

HOUSE AND FLOAT, MARYLAND MOTOR BOAT CLUB.

Officers were elected at the November meeting of this club, with a view of selecting men capable of carrying out the M. V. P. B. A. meeting next July. All are men of executive ability and experience in the racing game. The roster includes the following: Commodore Thomas H. Webb, Vice-Commodore D. S. Brown, Rear-Commodore F. R. Dennis, Secretary Warren Cowles, Treasurer Edward H. Gower, chairman racing committee, Harry G. Wasson, and a board of nine directors.

The July meeting will be for speed boats of the classes made official by both the Mississippi Valley and Western associations. They are the 40-foot, 32-foot, 26-foot and 20-foot classes, over-all measurements, and no other restrictions or handicaps. A 20-footer may be started in the 40-foot class, but the 40-footer stands alone. There are, of course, several events for cruisers, cabined or otherwise, and for novelty races.

The owner fortunate enough to pull down the 40-foot victory will win a small fortune in cups and cash. The cash prize is $1,000, already guaranteed by the Corning Company. In fact, every cash prize the I. V. Y. C. is offering is doubly guaranteed by some business firm and by the club itself. The winner takes all of this $1,000, and besides will get the $1,000 silver Webb Cup, which goes to the winner of the Mississippi championship. He will get the regular Mississippi Valley silver trophy cup now held by Lamb IV, at Clinton, Ia., valued at $100, and also the National Hotel Trophy, valued at $250, now held by Hoosier Boy, at Rising Sun, Ind. Second money in this race is $200 in cash. For all the other classes $100 for first and $50 in cash for all seconds has already been hung up.

The Maryland Motor Boat Club

In the history of yachting at Baltimore there never has been an organization that has sprung into prominence as has the Maryland Motor Boat Club, a club that, within a few months after its founding, built for itself a beautiful home on the shores of the Patapsco River and became a great factor in the sport of the Monumental City.

Not only has the club shown enterprise in erecting its building, but during the past summer it held the most successful motor boat races ever held in Maryland waters. More than fifty boats in various classes were entered, and 10,000 people lined the shores to witness them.

More than that, the members of the club have taken a most active part in the affairs of the port. They have a committee whose duty it is to ascertain the whereabouts of wrecks and obstructions to the navigation of small boats, which, in co-operation with the Revenue Cutter Service and the Baltimore harbor engineer, they have had removed. Only last month they had taken from the Patapsco an abandoned hulk that had been a menace for some time, and they are vigorously fighting for the removal of other obstructions in water outside of the regular ship channels.

The club is just about one year old, as it was formed in the winter of 1908. Unlike most clubs it has two sets of officers, President W. P. Bigelow and his staff looking out for the business end of the club while Commodore Myer Rosenbush and his staff look out for the social and aquatic end.

It was, however, the rapidity with which the club was organized, and with which its handsome home was erected, that drew the greatest attention to it. Unable to purchase a site they leased their land rights at Ferry Bar, the center of Baltimore's motor boating interest, and erected their house on piles out over the water.

The latter step was a wise one, and one that might be followed to advantage in other localities, for, should they ever be compelled to move, all they will have to do will be to place a couple of big scows under the building, cast off a score or more bolts, and the whole thing, except the piling, can be taken away without even disturbing the contents.

The club now has a membership of about 300, but the membership committee hopes to increase this number to 500 before the season of 1910 opens. At present there are an even 100 boats carrying the club colors.

Norwalk, Conn.

What promises to be one of the most successful seasons for the yacht clubs around Norwalk will commence about the middle of next April. The rivalry between the Norwalk, East Norwalk and Rowayton clubs will be keener than ever, and a number of the members of the East Norwalk Club will have new boats that should give their competitors some sharp rubs. The Rowayton Yacht Club also expects to have a number of new craft.

The club house of the Norwalk Yacht Club will be entirely remodeled at a cost of some $7,000, the amount being subscribed by the members of the club. At present a little more than $5,000 has been subscribed, and most of the remainder pledged. The changes will nearly double the size of the present club house, and, among other things, a ball room, 70 feet by 70 feet, will be provided. A new observation tower will also be added. Most of the changes will be made on the front of the building, that part being built out on stone piers.

The club is in a well-sheltered position, and the bay in front is a favorite anchorage for craft of all kinds. The Marguerite, William F. Clark owner, and the Wanderer IV, R. B. Budd owner, are the prize winners of the fleet. Both boats are in the Handicap Class.

William McHugh, a member, has secured a new racing sloop, which he will enter in the season's regattas. The craft, which is a 30-footer, has fine lines, and should show a fair turn of speed. Mr. McHugh will also have a small power dory, to use as a tender to his sloop.

At present the membership of the Norwalk Club is about 110, and the coming season should show an increase of nearly 100. The annual meeting and election of officers will be held in February.

At its next annual meeting the East Norwalk Yacht Club will add a power boat division, owing to the large number of motor boats in the club fleet. This club, although only two years old, has a membership of sixty, with many new applications coming in. The digging of a spacious basin in front of the club by the Government will undoubtedly help them a great deal.

An open motor boat race, or regatta, will be given this summer under the direction of this club. There will be no handicapping, and the race will be over a 9-mile course on Long Island Sound. This will be the most important event that the club has ever held, and will be one of the features of the season in this vicinity.

The local boat builders are rushed with orders, and say that the outlook for this season is 100 per cent better than for the past two years. Frank Brown, of South Norwalk, is having a 40-foot cruiser built. She will have 9 feet 6 inches beam and 32 inches draft. She will be a very roomy boat, having a 7-foot trunk cabin, a 12-foot glass cabin and a 6-foot engine room.

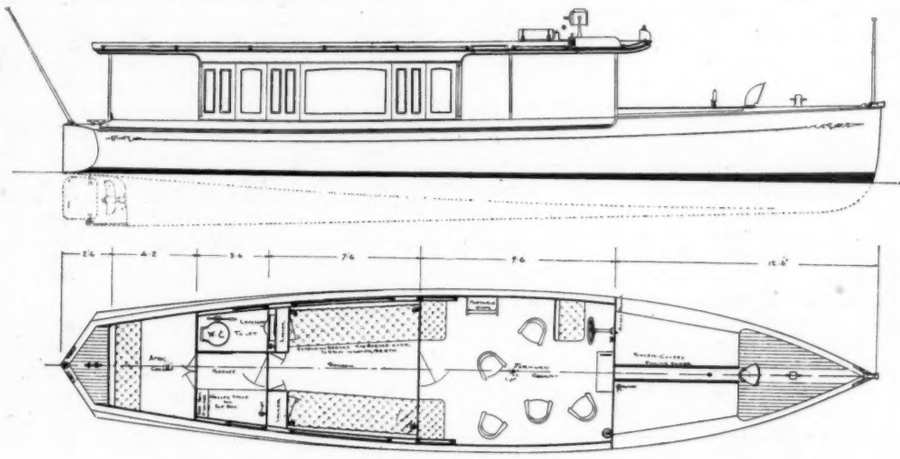
Oscar Anderson, who is building the craft, is also building a small speed boat for Forrest Case, of the Rowayton Yacht Club. This club also expects to have a lively season.

Boston, Mass., January 22 to 29, 1910

THIS year the National Motor Boat and Engine Show, held under the auspices of the New England Engine and Boat Association, and sanctioned by the National Association of Engine and Boat Manufacturers, will be held during the week of January 22 to 29, inclusive, in the Mechanics' Building, Boston, under the management of Chester I. Campbell, to whose foresight, energy and unfailing good nature the success of previous Boston shows has been so largely due.

This, the first boat and engine show of the season, bids fair to attract a goodly attendance among those seeking the latest development in craft, engines and accessories. The following illustrated advance description will prove of consuming interest, not only to those who are unable to attend the exhibit in person, and to whom YACHTING's Show Supplements have each year stood for the greatest and most concise resumé of the latest inventions and improvements in the motor boat field, but as a guide to many who will be able to devote but a limited time to the examination of the products exhibited at the show.

The description is not by any means as full and complete as we desired that it should be, for the reason that some manufacturers and builders, at the date of this issue going to press, did not have their exhibits in such shape as to allow of either illustration or description.



40-foot Semi-Speed Cruiser of the Bath Marine Construction Company.

A 40-Foot Semi-Speed Cruiser The exhibit of the Bath Marine Construction Company, Bath, Me., will consist of a 40-foot cruiser, of the semi-speed type. This boat is radically different in arrangement from the general run of our Eastern-built cruisers. The dimensions are 40 feet over-all length, by 8 feet beam, with a draft of 29 inches of water at skeg. She has a plumb bow, rather rounded at the forefoot, with a V-shaped stern. The forward deck is 12 feet 6 inches in length, and under the after portion of this, covered by hinged doors, the engine, a 60-horsepower, six-cylinder, four-cycle motor, is installed, the engine space being ventilated by a hood, just aft the sampson post. The engine space is divided from the forward cockpit by a bulkhead. This forward cockpit is 9½ feet in length, and is fitted with three small locker seats, the forward one being for the steersman, the rest of the floor space being left free for chairs.

Next aft comes a 7½-foot saloon, with extension berths and pipe berths, so arranged that, by stowing in the lower berths, the extra large plate-glass windows are left unobstructed. There are two emergency berths that can be set up over the main berths, as in a Pullman car. At the after end of the saloon are two good-sized lockers. A door in the after saloon bulkhead leads into a passageway 3½ feet long, on the port side of which is a lavatory, and on the starboard side the galley, with space for stove, ice-box and dish locker. The after cockpit, across the after end of which runs a lazy-backed seat, is 4½ feet in length.

The cabin in this boat is a combination of the standing roof and glass-sided types, the forward cockpit being sheltered by a roof which projects somewhat over the forward deck, and from which side curtains may be drawn down in rough or wet weather. The saloon, lavatory and galley are housed in, while the after cockpit is under the after projection of the standing roof, which is also equipped with side curtains. The boat is guaranteed to develop a speed of 16 miles per hour, and, while constituting a speedy runabout for day runs, can be used very comfortably by a party of four on longer cruises.

A Varnish That Will Not Discolor One of the most interesting exhibits at the show to the man who takes pride in keeping his boat looking well and the decks and bright work glossy, will be that of Valentine & Company, manufacturers of all kinds of varnishes. This firm will occupy space No. 75, and besides showing natural wood panels varnished with Valspar, the high-grade spar varnish, and Valspar Enamels, it will have a large glass tank, in which is sunk a miniature submarine boat varnished with Valspar that has been under water for the space of six months. On this submarine no trace of discoloration is shown, or of any scaling of the surface. There is also another submarine immersed in a tank, that is designed to show the comparative longevity of Valentine's spar varnish and other makes. This hull is painted black and then varnished with alternate stripes of Valentine's Valspar and the varnishes of other manufacturers. Those portions of the hull coated with Valspar show bright and black through their covering of varnish, while the stripes coated with the other varnishes range in hue from a dull gray to almost white.

The object of this demonstration is to show that no matter what effect long immersion might have on other varnishes, Valspar will not turn white. This exhibit will be on a more extensive scale than the one made by the same company last year.

WILL NOT TURN WHITE

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has now been on the market for two years, and has thoroughly proved itself. It has been a source of pride and gratification to us that such prominent masters as: G. D. Purdy, Auxiliary Schooner "Intrepid"; N. Fergusen, Auxiliary Schooner "Sultana"; D. A. Kerr, Auxiliary Schooner "Alcione"; Chas. Barr, Sloop "Volunteer"; Lem Miller, Sloop "Reliance"; D. C. Packard, Steam Yacht "Arrow"; A. Peterson, Steam Yacht "Celt"; L. Jeffries, Steam Yacht "Virginia"; Chas. Wesley, Steam Yacht "Wanderer"; J. H. Pruett, "Kismet"; Chas. Conk, Steam Yacht "Little Sovereign"; R. M. French, Steam Yacht "Atreus", and many others, after a fair trial of VALSPAR, voluntarily tell us it is the most satisfactory spar finish they have ever used.

Further information will be gladly furnished. Write for Booklet Y, "What the Masters Say".

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BECAUSE—the use of the best lubricant is the best form of insurance against motor troubles.

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BOSTON FALL RIVER PHILADELPHIA

Some New Fashions in Bilge Pumps A rotary air-power bilge pump, 6 inches in diameter, weighing 18 pounds, that will throw 10 gallons of bilge water to the minute, is one of the exhibits of the Trimount Rotary Power Company, of 206 Summer Street, Boston, Mass., in space No. 214.

These pumps are particularly useful as bilge pumps for small yachts, on account of their compactness. They may be fastened to a bulkhead in any out-of-the-way place, and they are devoid of packing. Constituting, also, a powerful force pump, they are particularly adapted for washing down decks, cleaning anchors and chains, and the hundred and one services aboard a boat to which a compact and powerful force pump, actuated either by hand or engine, may be utilized.

Trimount Rotary Bilge Pump which may be attached to bulkhead any where, and also used as a force pump.

Another device of the Trimount people is a new idea in the way of a rotary blower, driven by friction with the engine fly-wheel. This blower is especially designed to throw a large body of air, and in connection with a specially designed bell whistle produces a very loud tone. No compression tank is needed in connection with this apparatus, as the rotary air pump takes the air through a gauze inlet port, compresses it and passes it through the whistle pipe.

By means of a short motion of a lever the operating wheel is brought into, or released from, contact with the engine fly-wheel, thus enabling the skipper to have the number and duration of blasts immediately under his control. The control lever of the apparatus may be connected up with a rod or cord, and operated from any desired portion of the boat.

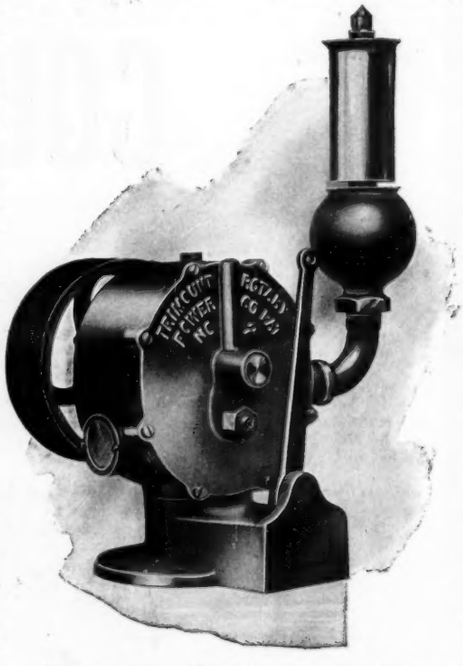
For Mixing and Igniting the Charge In space No. 30, W. J. Connel, of 36 Columbus Avenue, Boston, Mass., will exhibit Schebler carburetors, Pittsfield magnetos and coils and E. & J. searchlights. The standard models of Schebler's carburetors are too well known to require description, but in Mr. Connel's exhibition this year there will be Schebler's latest production, the Model L Carburetor, which the manufacturers claim to be an absolutely perfect device for producing the correct mixture at both high and low engine speeds. It is particularly designed to meet the needs of the highest class multiple cylinder motors. The float valve cone in the Model L is made of phosphor bronze, and the finish is equal to that of the finest jeweler's work.

The knife-edge float valve seat is of tempered plate, and of a shape that makes it extremely difficult for the lodgement of dirt thereon. By a contraction of the low-speed air passage, seated at the orifice of the spray nozzle, increased velocity to the air current is given, insuring a more perfect mixture. The air valve is absolutely automatic, by reason of the larger and more easily compressible coils being first acted upon, while the smaller and less compressible coils are last to yield to the increased suction caused by the increase in speed of the motor. Among the new features of the Model L Schebler may be mentioned the air valve, which is arranged to draw air from top or bottom, and the leather air valve, backed up by a brass plate, thus obviating any danger of buckling. The arrangement of this valve, in having a long bearing and traveling on a rod supported at both ends, guarantees perfect alignment at all times.

The adjustment for low speed is made directly by the needle valve, while that for the intermediate and high speeds is obtained by means of independent adjustments. These carburetors are made in 1, 1¼, 1½ and 1¾-inch sizes.

The new Pittsfield magnetos, which will also be shown by Mr. Connel, are claimed by their manufacturers to combine the maximum of simplicity with the greatest efficiency in operation, and with these magnetos the hottest possible spark available for ignition purposes can be obtained, and the resulting arc flame, which passes between the electrodes of the spark plug, will ignite a much weaker mixture than could be exploded with ordinary ignition methods.

Pittsfield coils, both in box and dash types, will be shown. The dash coils are equipped with new Pittsfield switches, arranged for double batteries or double ignition systems, and also with a new side catch, allowing the top of the box to be quickly removed, and yet keeping it securely closed against jars, will prove a new and attractive feature. These dash coils are made in from one to six-cylinder, with and without switches, and the four-cylinder sizes are also made in the new short unit pattern, which is in every way the equal of the regular type, but admits of considerable economy in space.



Trimount Rotary Blower for operating whistles without a compression tank.

A Reverse Gear which is Simple, Positive and Strong The Paragon Reverse Gears and One-Way Clutches, built by the Evans Stamping & Plating Company, of Taunton, Mass., will be shown by them in space No. 106. This gear is compact, strong, moderate in size, easily installed and simply adjusted. It is of a novel design, four pinions being located at equal distances around the engine gear balancing the transmission of power; these in turn transmit to the internal propeller gear, giving a direct drive with a minimum of gear friction. The gears are always in mesh, but in operation only when reversing the propeller or when the engine is running idle.

The gears are planed, of the stub-tooth type, which the manufacturers claim to be 20 per cent stronger than the ordinary involute tooth. Among the many good features of the Paragon is the fact that it is practically noiseless when reversing, this quietness being due to the fact that the gears are planed and run in oil. The engine gears and pinions are made of 35-point carbon steel, and the propeller gear is cast of the best grey iron.

The pinions and cover are hard bronze bushed, and no couplings are required, as both engine and propeller gears are bored to fit their respective shafts. The case is made oil-tight, and is provided with an oil hole, and there are also grease cups on the brake band, allowing the perfect lubrication of the gear at all times.

In addition to the Paragon Reverse Gear, the Evans Stamping & Plating Company will also show their One-Way Clutch, built to meet the demand for a low-priced on-and-off clutch, by which the engine may be allowed to run idle when desired. These require no couplings, the case and cover being bored to fit engine and propeller shaft of the purchaser.

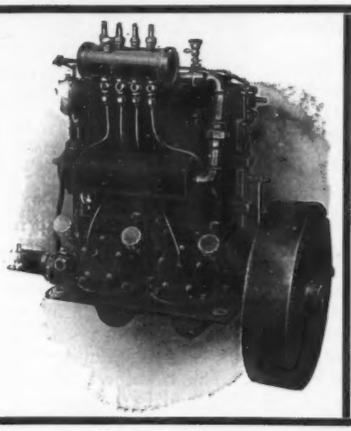
Heavy Duty Reversing Propeller Outfit The Wilmarth & Morman Company, of Grand Rapids, Mich., will show their "Sintz" reversing propeller as a speed and heavy-duty outfit. This is made possible by a strength which the makers claim to be greater than that of a solid wheel and reverse gear outfit. The outfit is light (less weight means much in a speed boat), and it takes up very little space. The blades are its weakest point, and they are just as strong as the blades of the corresponding size solid wheel; if bent they can be hammered back in shape; if broken, replaced. A special shell is furnished for purely speed outfits, and the wheel is fitted with either a special tobin-bronze shaft or one of nickeled steel. The makers of the "Sintz" claim that it offers a perfect control over both speed and direction. If equipped with a "Sintz" it is not necessary to hold the boat with ropes. The wheel set at neutral will hold the boat stationary.

Its strength, speed and perfect control have also made the "Sintz" an ideal heavy-duty outfit. A working boat equipped with a heavy "Sintz" wheel can run up to a tow at full speed and stop in its own length, or creep up gradually as desired. Then when the tow is fastened, the most efficient pitch for towing the particular tow can be obtained by moving the lever. The same pitch is not desirable for towing heavy stoneboats as is desired for towing a lighter craft. All this is taken care of by an adjustable pitch.

The 1910 Ferro Engines The Boston Engineering Company, in space 28, will display a complete line of 1910 Ferro engines in all sizes and with all equipments. The exhibit will include Ferro engines with governors attached, Ferros with jump-spark, and with make-and-break ignition, Ferros with magnetos, water-jacketed whistles, and with Ferro reverse gears. The improvements and refinements embodied in the 1910 design have greatly increased the power, and at the same time reduced the weight.

The 1909 Ferro design, which embodied the removable cylinder head, hand-hole in crank case, offset cylinder and other important mechanical features, found immediate favor. The 1910 Ferro engine will embody these same features with a number of important improvements.

SEE PALMER ENGINES AT THE SHOWS



NOTICE the accessibility of every part and ease with which it may be replaced when necessary.

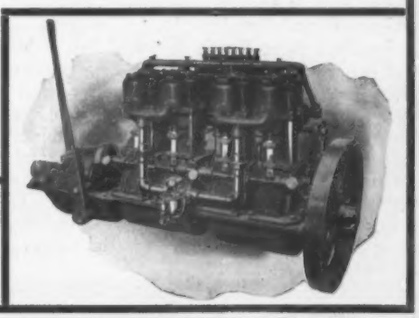
Parson's metal, the greatest of anti-friction metals, still improved by a pressure of 2,000 pounds to the square inch, is used in our 1909 connecting rods and bushings.

The success of Palmer 2 and 4-cycle engines is world-wide. 40,000 of them are in satisfactory use all over the world today.

15 years of engine building culminate in our latest models; it would pay you to send for our catalog now.

Let Us See You at the Shows.

LAUNCHES IN STOCK FROM 17 TO 30 FEET.



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EVEREADY POCKET METERS

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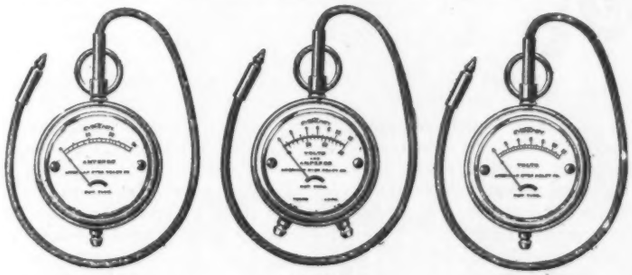
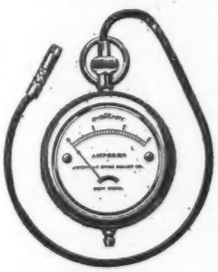


No. 1002 AMMETER

No. 1003 VOLT-AMMETER

No. 1005 VOLTMETER



No. 1007 COIL TESTING METER

No. 1008 AMMETER AND COILMETER

WORK PERFECTLY IN EITHER DIRECTION OF CURRENT

These meters are made on the only correct principle. Having the smallest number of working parts they are least liable to get out of order.

HAND CALIBRATED

The hand comes to an instant and positive stop without vibration, giving a quick reading and saving the battery.

AMERICAN EVER READY CO.

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We know what the public expects of the

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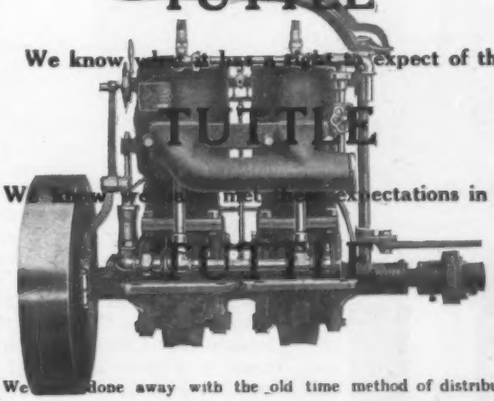

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Small Things that Make the Cruise Comfortable

In space No. 91 the American Every Ready Company, of 304-322 Hudson Street, New York City, will have on exhibition a splendid collection of up-to-date accessories which every motor boat owner needs in order to obtain the maximum amount of comfort and pleasure from his trip afloat.

The Ever Ready Flash Lights, which have for years been standards, are well known to every boat owner, but with the bringing out of the Osram Lamp, which is applied to them, 500 per cent more candlepower than was possible with ordinary carbon filament bulbs is obtained, and a longer life given to the operating batteries. In the Osram Lamp the filament is made of finely drawn metal, cross-sectioned so as to allow greater length of wire and maximum concentration of light. Moreover, the high point of fusibility of these filaments permits of greater incandescence than has before been possible. These flash lights are designed to meet the demand of those who require an exceptionally bright light.

Ever Ready Volt and Ammeter, giving correct readings for voltage and amperage.

Ever Ready Bull Dog battery connectors, which will not shake loose.

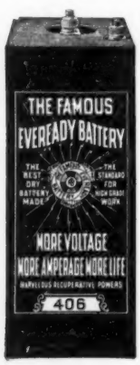
Standard Ever Ready Ignition Dry Cells are also shown in both round and square cartons, the latter being particularly adaptable for use aboard power boats by reason of the compact storage they make possible. The Ever Ready Dry Cells are justly famed for their combination of high amperage and voltage, with long life and uniformity, features insuring a hot, snappy spark, maximum mileage and consistent, dependable service. By reason of their low internal resistance and perfect depolarization, these dry cells, while high in initial amperage, are particularly long lived.

Right in line with the dry batteries are the Ever Ready Bull Dog Battery Connectors, which dispense with thumb nuts and all those ignition troubles caused by loose battery connections. While they can be snapped on in a second and as easily removed, they will not shake loose, and give perfect contact with minimum resistance.

More and more the boat owner is coming to realize the importance of knowing absolutely just what is the status of his battery in regard to amperage and voltage. To the man who wants to keep thus advised regarding the condition of his batteries, the Ever Ready Pocket Meter—very small, neat and accurate—will particularly appeal. The line shown will be a full one, consisting of Ever Ready Ammeters, for reading current in amperes, the volt meters for reading current in volts, and the volt ammeters, which, by an instantaneous shift of contacts, gives the correct reading either for voltage or amperage. In addition to these the Ever Ready Coil Testing Meter, which determines instantaneously the amount of amperage consumed by a spark coil, thereby enabling the skipper to adjust his coils with absolute correctness, will prove a winner. These meters are made by an entirely new process, each consisting of the smallest possible number of working parts, and the recording hand comes to an instant and positive stop without vibration, thereby enabling the instantaneous taking of electric measurements without danger of running down the battery.

Ever Ready Osram Safety Inspection Lamp. May be used either with dry cells or storage battery.

The Ever Ready Safety Inspection Lamp—a very handy device for locating engine troubles at night—will also be shown. These lamps may be used either with storage battery or dry cells, and are equipped with Osram high-efficiency lamps and 12 feet of cord. They are made in 4 and 6-volt capacity.



Ever Ready square batteries, which are of great advantage in stowing.

Ever Ready Osram Lamp, giving 500% more candle power than with ordinary carbon.

An Improved and Reliable Magneto

The Splitdorf Laboratory, of Walton Ave. and 138th St., borough of the Bronx, New York City, will occupy prominent space with an exhibit of the well-known magnetos and coils that bear the Splitdorf name.

In the 1910 Splitdorf Magneto the breaker box is so improved that it will not become short circuited by dirt or oil. All parts of the instrument are fastened in the strongest possible manner, and nothing short of the most extraordinary accident could put it out of business.

The greatest improvement of the year is the tube transformer, which admits of its being placed under the hood near the magneto. This style of transformer obviates the necessity of carrying the secondary high-tension current to the dashboard for switching purposes, as heretofore has been done with the regular transformer. This does away entirely with the necessity for the large number of connecting wires.

The points aimed at are accuracy, interchangeability and finished workmanship. That this result has been obtained is due mostly to the improvements in the machine shop equipment and the esprit de corps shown by the different heads of the manufacturing departments.

Splitdorf Magneto, 1910 model, in which wiring arrangement is greatly simplified.

In the Splitdorf Coil for 1910 it has not been found desirable to make any change from the model of 1909, with the exception of a refinement of detail by which the utmost accuracy and efficiency is secured. The Splitdorf Synchronized Coil solves the problem of igniting multi-cylinder engines with a single vibrator, thereby firing each cylinder at the proper time and in perfect synchronism, as the spark is furnished by an individual unit operated by a synchronized vibrator. The vibrator is a separate instrument from the coil units, and is so placed in the coil box that it can be adjusted at any time. This coil is made for two, three, four and six-cylinder engines.

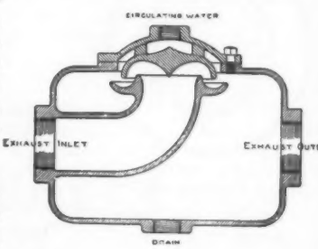
To Reduce Exhaust Noises Without Decreasing Engine Power

It is no longer considered exactly the thing to announce the approach of your boat with an exhaust that resembles a rapid-fire battery going into action, and anything that will tend to decrease the vociferousness of the spent gas after it reaches the exhaust pipe, is apt to be hailed with joy by the critical boat owner, provided he can be assured that he isn't cutting down his power as well as the noise.

The Thermex Silencer Works, of 85 Sumner Street, East Boston, Mass., will have on exhibition, in space No. 81, their Thermex Odorless Free Exhaust Silencer, which they claim meets with every requirement of the most fastidious speed boat lover.

As will be seen by the illustration, the Thermex has an unobstructive exhaust inlet of increasing area to an expansion chamber of ample size. Over the inlet nozzle to the expansion chamber is placed an umbrella-shaped deflector, which discharges the exhaust gases around its edge in a thin sheet All circulating water from the engine is delivered over the center of this umbrella deflector, from the edge of which the water flows in a thin sheet, causing perfect mixture of water and exhaust gases, thereby reducing the temperature and volume of the exhaust gases to the lowest degree. The lower edge of the umbrella is below the top of the inlet nozzle, so that water from the circulation inlet cannot flow into the exhaust passages to the engine. In the process of cooling the exhaust, all the odor and solid matter held in suspension in the exhaust is precipitated by this circulating water, and is carried out through the drain pipe in the bottom of the expansion chamber, so that only a slight vapor is carried out through the exhaust outlet, and the engine is subjected to the least possible back pressure. The exhaust inlet nozzle, having its delivery at the highest point in the expansion chamber, and the drain pipe in the bottom, absolutely prevents any water that may flow back through the exhaust outlet, when not in use, from passing into the exhaust passage to the cylinder.

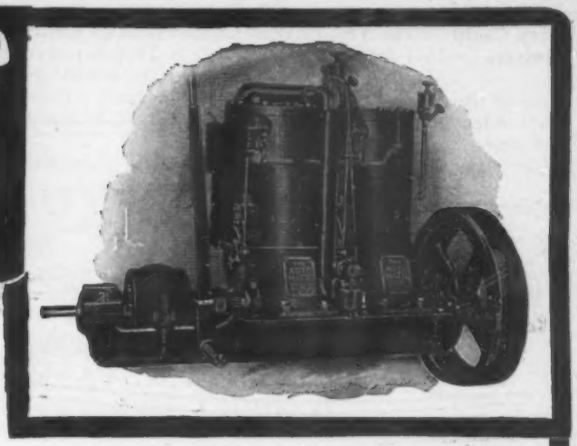
The Thermex is the most satisfactory atmospheric exhaust, and increases the efficiency of underwater exhausts by reducing the volume of the exhaust gas to be delivered at the outlet.



Thermex water-cooled exhaust silencer which sprays exhaust gases.

"The Automatic"

Specially Constructed For LONG DISTANCE CRUISING



"The Automatic" Engines run reliably at slow speed under the most adverse conditions through intricate channels or canals just as well as at their full-rated power.

"The Automatic" Engines run day and night, for months on end; one of them recently completed a trip of 8,000 miles with never a hitch.

And after this that same engine went right off again on her next voyage with less than a dollar's worth of repairs

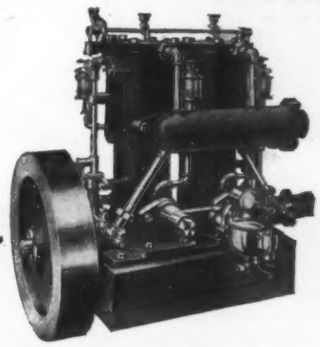
If you are planning the power equipment for your next year's cruiser, if you contemplate long stretches off shore or away from gasolene specialists, it will pay you to write us that we may tell of what the Automatic has actually done in long-distance work.

"The Automatic" Engines are the Standard of Relability and Simplicity.

We are making a special price reduction on our 6, 12, 18 and 24 H. P. engines. Ask about it. One to six cylinder. 6 to 150 H. P.

AUTOMATIC MACHINE COMPANY - - BRIDGEPORT, CONN.

Automatic Machine Co., Railroad Ave. and Washington St., Seattle, Wash. Mr. H. H. Lewis, Manager).
Automatic Machine Co., 1811 Market St., Galveston, Tex. Mr. Jas. M. Parmelee).
P. P. Brueckbauer, Elkhart Lake, Wis.
Crescent Marine Motor Works, 116 Ferry St. St. Louis, Mo.
J. W. Enright Iron Works, 862 Tchoupitoulas St., New Orleans, La.
Henshaw, Bulkley & Co., 19-21 Fremont St., San Francisco, Cal.
King & Runyan, Pensacola, Fla.
M. J. Moran, 4262 E. 96th St., Cleveland, O.
Harrison M. Reed, So. Jacksonville, Fla.
Rejerson Machinery Co., Portland, Ore.
Southern Gas Engine & Power Co., 25 Broad St., Charleston, S. C. (Chas. E. Witmack, Manager).
Chas. W. Triggs, 60 N. Canal St., Chicago, Ill.
Florida Gas Engine & Supply Co., Tampa Fla.
Wallace Bros., Norfolk, Va.
Page Engineering Co., 119 E. York St., Baltimore, Md.
Fairbanks Co., New York, Boston and Philadelphia.



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Perhaps not the cheapest engine as regards initial outlay, but the cheapest at the end of a year's service, that is, if you consider reliability, accessibility and wearing quality as assets worth while.

Royal Engines are built for long runs in the open sea, in all weathers and conditions.

They are the embodiment of all that is best in marine engine construction.

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157 Housatonic Avenue - BRIDGEPORT, CONN.

SHIPMATE RANGES

8 SIZES 11 STYLES

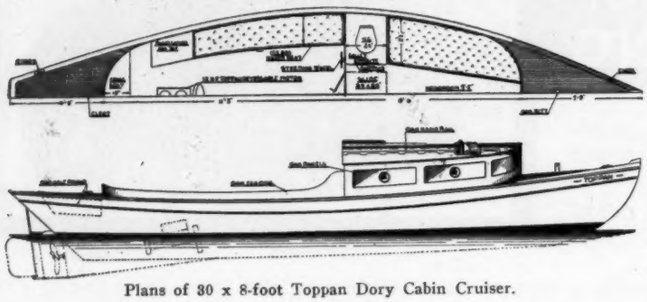
Come away, Yachtsmen! Come away down
To the tropic isles, and the palm-fringed town,
Where the breeze is soft, and the night a dream,
And the harbor a wonderful color-scheme,
With pleasures in plenty for you to choose,
But carry a Shipmate on your cruise.

THE STAMFORD FOUNDRY COMPANY

Established 1830 STAMFORD, CONN.

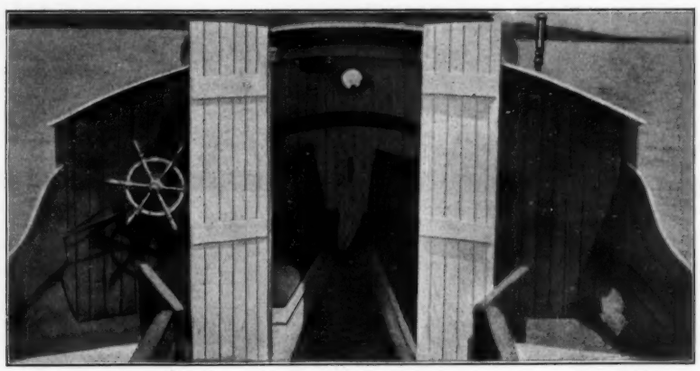
Dory Cabin Cruisers The Toppan Boat Manufacturing Company, of 25 Haverhill Street, Boston, Mass., of Toppan power boat and motor fame, will show in spaces Nos. 31, 32 and 33A, not only specimens of their open power dories, but a cabin craft, which will attract even more attention than that which they exhibited in the Boston Show of last year.

The plans and illustrations herewith show the possibilities in the way of



Plans of 30 x 8-foot Toppan Dory Cabin Cruiser.

cabin and cockpit accommodations in the 30 by 8-foot Toppan dory, and how comfortable living quarters may be obtained in what is undoubtedly one of the lowest priced and most seaworthy types of craft of these dimensions. In the cabin is a toilet with curtained front, which takes up very little room. The seats in the cabin are 10½ inches high, quite wide at the after end, so that they can be easily used for berths. The space opposite the toilet is, on the larger boats, used for a small galley. In the cabin are lockers for carrying stores, and under the forward deck, which is reached by a door through the bulkhead, is a large storage room for bedding and clothing, in addition to room for an anchor and cable. A neat arrangement in the make up of the Toppan cruiser is the placing of the gasolene tank aft, with a ventilator above, so that all gasolene is kept from the cabin in event of a leak. Of course, safety is an essential feature in cruising boats, and it seems in the Toppan these little details were all carefully worked out. The head room from the floor to the top of the slide of the cabin is 5 feet 2 inches, the height of the cabin forward is 17 inches, and aft at sides is 19 inches. The crown on the cabin is 9 inches.



View of Interior of Cabin, looking forward.

There is a large cockpit, and while the engine may be housed in, many prefer to have it in the open cockpit, protected by an awning or spray hood. The boat is made with raised lockers with oak tops on each side of the engine. The steering gear is all above deck.

Although one might imagine the 26 by 6½-foot boat pretty small for cruising, it is a roomy and comfortable outfit, with the same arrangement as the 30-footers. This boat, equipped with an 8-horsepower engine, will develop a speed of 8½ miles an hour. On all boats there are oak mouldings, which add much to the appearance, and oak strakes under the roof timbers for chart racks and papers, and these being in the natural varnish finish, make a pretty contrast to the white enamel finish of the rest of the cabin interior.

Insurance Against Motor Troubles Colonial Oil, which has been so long and favorably known by all motor boat skippers, will be very much to the front in space No. 92, where the manufacturers, the Borne, Scrymser Company, of 80 South Street, New York; 36 Commercial Wharf, Boston, and also of Fall River and Philadelphia, will demonstrate the good points of their friction reducer to an interested audience.

The brand Colonial is made in five consistencies, and for motor boats the heavy and medium grades are proving most satisfactory, although for winter use some customers prefer a little lighter oil, when the fluid grade is used. In passing, it may be remarked that whoever designed the Colonial cans did not forget that a really practical spout means oil in the oil cups and tank instead of in the bilge.

An Automatic Self-Bailing Device We all remember the cricks we have put in our backs while extracting H^2O from the bilge of our boats by means of a hand pump. We used to get awfully tired of this kind of exertion, and finally installed, or contemplated installing, a power bilge pump that would enable us to sit back on the cushions and calmly smoke a pipe while watching the bilge water pour out of the nozzle of a hose attached to said pump.

The power pump, when installed, usually worked pretty well as per schedule, but in many cases it was either in the way in the boat, when not in use, or required lifting a portion of the floor in order to connect or disconnect. Last season we learned of a siphonic arrangement that would keep a boat dry. We thought, perhaps, the millennium had come, but this was an apparatus that required a boat with a speed of 20 miles an hour to become effective. This is the reason that our dreams of joy were short-lived.

There is something new on the market to-day. It is Hitchcock's Automatic Bilge Bailer. To be sure, it is intended for reasonably fast boats. If you have a fast boat that you want to make go faster, that is, to increase its speed from ½ to 2 miles an hour, what you want is a Hitchcock Automatic Bilge Bailer. It is practical, indestructible, effective, easy to apply, and, best of all, requires no attention. This bailer is absolutely automatic. It is always on the job. It comences to do its work the minute your boat is under way. When you slow down or stop it automatically closes.

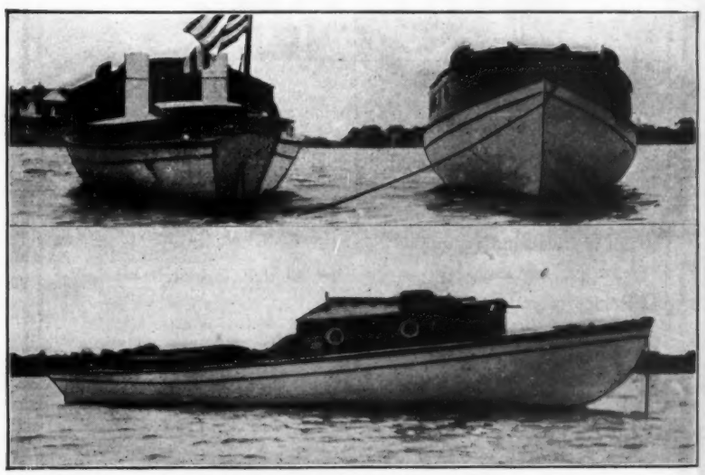
Every boat equipped with the Hitchcock Automatic Bilge Bailer will be as dry as a bone, and you need never worry or think what is keeping your boat dry. You will require neither extra power nor change in your hull to use a Hitchcock bailer. When you are equipped with one you are not carrying around hundreds of pounds of bilge water, that not only will retard the speed of your boat but, in itself, is a menace to safety. The device, as exhibited in space No. 50 by the A. S. Morss Company, of 210 Commercial Street, Boston, will surely draw an appreciative crowd.

This is a subject that will interest all yachtsmen. Every owner of a motor boat should write for further particulars to the Automatic Bilge Bailer Company, Department D, 150 Huntington Ave., Boston, Mass.

Sterling Equipments for All Kinds of Service The Sterling Engine Company, of Buffalo, N. Y., will exhibit at the Boston Show engines of the following sizes and types: 8-12-horsepower model C, 18 and 60-horsepower heavy duty model D, 18-25, 30-45 and 45-65-horsepower model B.

The 8-horsepower is a two-cylinder engine of 4¾-inch bore by 6-inch stroke, weighing 650 pounds, including the reverse gear, which is also a Sterling product and contained in an extension of the lower base. This engine was designed for heavy-duty work, and especially for the use of fishermen, where absolute reliability and the faculty to stand hard usage are required. The 60-horsepower is six-cylinder, with 6½-inch bore by 8-inch stroke; weighs 3,110 pounds, and is designed for tugboats or heavy-cruising craft. It has a mechanical oiling system, and a plunger water circulating pump, bilge pump and air pump at rear of machine. This is the same machine as installed in cruiser Nereides II of Bermuda race fame.

The 18-horsepower is of practically the same construction as the 40-horse-



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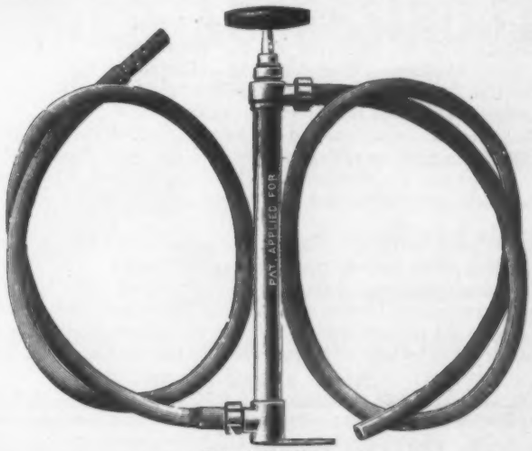

Patents Pending

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Enables you to pump your boat while seated on the locker. No more grease or dirt to soil your hands or clothes. Simply place the pump on the floor and run the hose to any part of the boat.

While similar to our Wurk-E-z-e it will outwear three of the old style. Costs a little more, but is cheaper in the end.

A demonstration will convince any who ever used a bilge pump.

THREE SIZES { $1^1/_{16}$ Diameter, $5.00 List Price; $1^1/_2$ " 6.50 " "; $2^1/_4$ " 15.00 " "

Send for circular and discounts. Everything you need for the boat is here. The largest line of Marine Hardware in the world we carry in stock.

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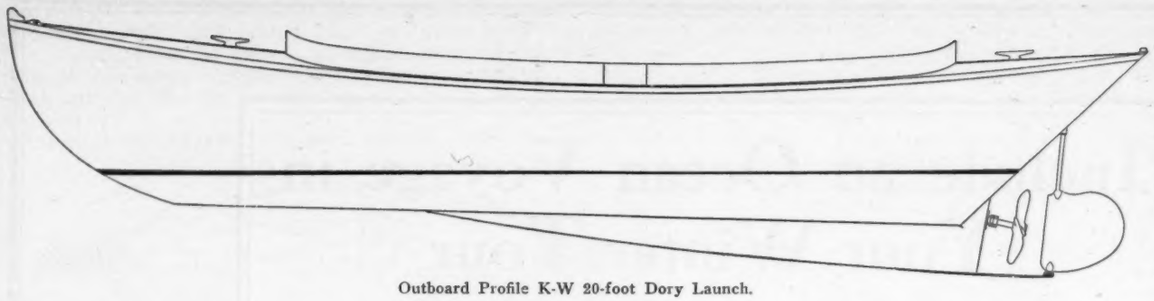
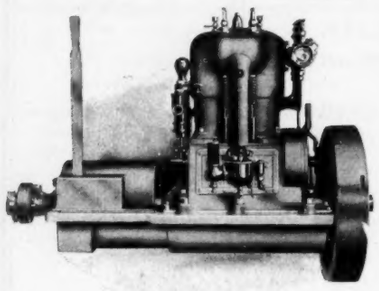


Outboard Profile K-W 20-foot Dory Launch.

power, its two cylinders having the same bore and stroke, the weight of the machine being 1,650 pounds. The 18-25-horsepower is four-cylinder, with a bore of 4⅜ inches and a stroke of 5½ inches. This engine is built with both iron and aluminum bases; with the former it weighs 690 pounds, with the latter 580 pounds. It furnishes an ideal power equipment for family launches, cruising or speed boats.



8-H.P. Heavy-Duty Sterling

The 30-45-horsepower is also a four-cylinder engine, with 5½-inch bore by 6-inch stroke, and weighs 800 pounds with aluminum base and 925 pounds with iron base. The 45-65-horsepower is a six-cylinder engine, with 5½-inch bore by 6-inch stroke, weighing 950 pounds with aluminum base and 1,125 pounds with iron base. With the former metal it makes an ideal speed engine, and with an iron base is particularly adapted as a power plant for fast day cruising.

These engines, which will be exhibited in spaces Nos. 67 and 73, will undoubtedly attract considerable attention, covering, as they do, engine equipments suitable for every class of power-propelled craft.

An Attractive Dory Launch In spaces Nos. 5, 5A and 6 there will be exhibited by the Kershaw-Williams Company, 77 Haverhill Street, Boston, Mass., one of their 20-foot "K-W" dory launches. This boat is 20 feet 6 inches in over-all length, 5 feet 6 inches beam and draws 21 inches. The freeboard at bow is 2 feet 9 inches, at stern 2 feet 1 inch, and the least freeboard is 1 foot 7 inches. Topsides are finished in white, the bottom with anti-fouling green, the decks and wash rails are bright and the inside of the boat is painted.

She is equipped with a 5-horsepower, single-cylinder "K-W" engine, with Orswell ignition system and submerged exhaust. The gasolene tank is of 15 gallons capacity; shaft and propeller are of tobin bronze, rudder and shoe of manganese bronze and steering wheel and deck fittings are of polished brass. As will be seen by reference to the deck plan, the seats run around three sides of the cockpit, ensuring the maximum of passenger-carrying capacity.

The Kershaw-Williams Company will also exhibit a 25-foot dory launch with a 10-horsepower engine; a 25-foot launch with a 9-horsepower, and a 13-foot "K-W" power tender with 1½-horsepower motor; also eight "K-W" special motors, ranging from 1½ to 15 horsepower.

In addition to the craft and engines above enumerated, they will also show a very complete demonstrating outfit of the Orswell ignition system, for which system, by the way, they are now sole distributing agents.

To meet with the demand which has recently sprung up for power canoes, they will offer to the gaze of an admiring public a 20-foot power canoe, equipped with a 1½-horsepower "K-W" engine. This canoe will meet the demand for a light power craft for the smaller streams and lakes.

Improvements in Equipment The Mianus Motor Works, of Mianus, Conn., will exhibit at the Boston Show one of each of the following motors: 3-horsepower, 5-horsepower and 7½-horsepower single cylinder; 6-horsepower, 10-horsepower and 15-horsepower double cylinder.

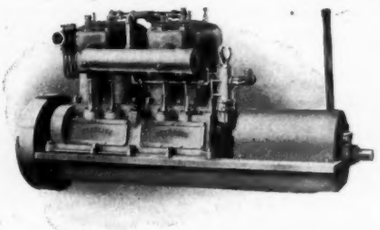
One of the motors will be equipped with a reverse gear, and one will be equipped with low-tension magneto geared direct to engine, and also a mechanical force-feed oiler.

An especial exhibit will be shown of their 1910 make-and-break igniter, which the Mianus Company claims to be the most perfect make-and-break igniter made. The tension on the contact spring is adjustable, so that the right pressure can always be maintained on the spark point. The wear of the spark point can be taken out on a minute's notice and without removing the igniter from the engine.

The 1910 Mianus motor, equipped with a low-tension magneto, will not require any battery or spark coil, and will show nearly 10 per cent increase in power over the ordinary method of ignition on these engines.

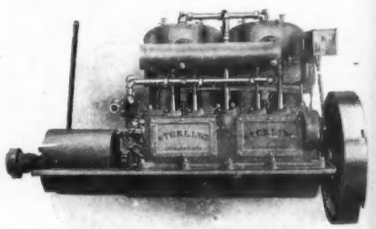
Recent Improvements in a Good Engine That the Jager engine, built by the Charles J. Jager Company, of 281-285 Franklin Street, Boston, Mass., will be in the foreground, as usual, during Show Week, is guaranteed by the recent improvements which have been made in this well-known engine.

The principal changes in the Jager for 1910 will in no wise affect the general design of the model, but will be along the line of refinement and details. For example, the cold water from the pumps is now delivered around the valve seat so as to thoroughly cool these parts of the engine. The cooling of the valve seats on the older Jager models was always very effective, and this is simply a matter of added refinement, as the manufacturer states, "to make assurance doubly sure" for the season of 1910. The cooling of the valve and valve chest appears not only to assist the valves, but the cooling effect on spark plugs and jump spark and on the igniters for the make-and-break system is distinctly advantageous.



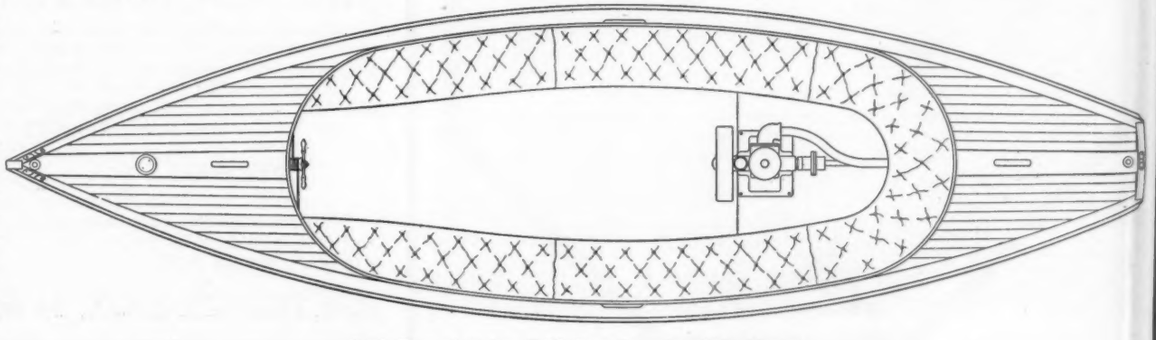
30-45 Type B Sterling.

The oil will be carried over into the circulating pump splash system in the larger Jager engines, using force-feed oilers for pistons and cylinders, while a gear-driven pump circulates the oil from a trap in the base, thus developing a continuous flow of the lubricating fluid over the crankshaft bearings while the engine is in motion.



40-H.P. Heavy-Duty Sterling.

In the high-duty engines, intake headers have been remodeled so as to develop better gas distribution, and carburetor mixing surfaces have been so improved as to develop a more homogeneous mixture of oil and air without decreasing flexibility. An increase in size has been made in reverse gears, to keep step with the increased power which the above changes have developed, and crankpin brasses are refitted so as to allow them to take advantage of the new oil circulating system.



Deck Plan of 20-foot K-W Dory Launch, 5-H.P. Motor.

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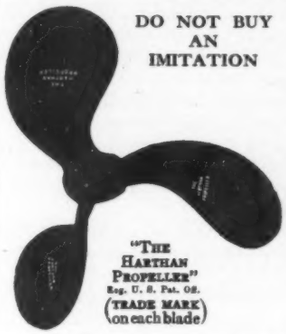

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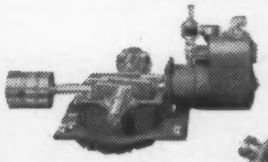

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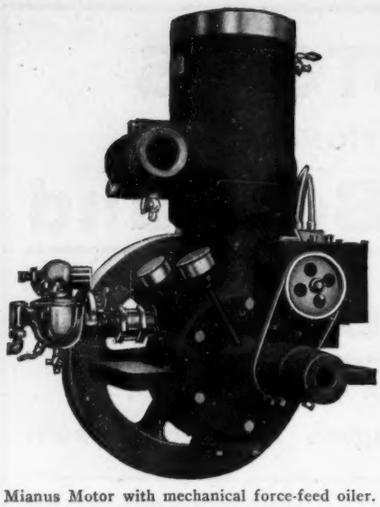


Mianus Motor with mechanical force-feed oiler. (See page 64.)

Specialties for the Exhaust Line The Atlantic Maritime Company, of 192 Commercial Street, Boston and Gloucester, Mass., will exhibit the Ejector Muffler, Reid Rational Underwater Exhausts and Marine Cut-Out Valves, manufactured by the Motor & Manufacturing Works Company, Geneva, N. Y.

The ejector muffler is well known among the motor boat builders and users in this country and abroad. It is built on the "Ejector" principle, which causes the gas to be sucked out in a uniform stream at a velocity in proportion to the speed of the piston. By this device the muffler is self-adjusting. The greater the speed of the piston the greater will be the suction at the nozzle.

The muffler is divided into three compartments, formed by two sets of cones, and is provided with a pipe of varying diameter passing through the center. This pipe is open at one end, and terminates with a nozzle at the other. The gas entering the muffler is broken up, part continuing through the center pipe to the nozzle. The other part enters the first chamber, and passes through the first set of cones into the center or second chamber, where it joins the gas from the center pipe, and continues to move forward through the second set of cones to destroy the partial vacuum caused by the suction of the nozzle. It will be seen that as the exhaust enters, the whole of the muffler will be instantaneously in operation, by part of the gas entering the first chamber and part entering the second chamber through openings in the center pipe, and part passing out at the nozzle into the outlet pipe.

The bodies are constructed of galvanized metal, and are coated inside with a preparation that thoroughly protects the metal from the action of sea water.

The Reid Rational Underwater Exhaust Head is provided with three openings at the outlet in place of one. The use of the second and third openings, which are placed at an angle each side of the main opening, are to allow the free escape of the exhaust gas when the engine is being started. As the speed of the motor increases the second opening will be brought into operation, and later when running at full speed the third opening. The two small openings allow the gas to escape on the inclined surface and raise the body of water above and below the exhaust head, which forms a larger cavity in the water than can be formed by the exhaust head alone.

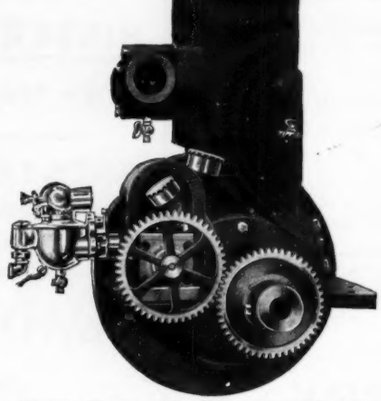
An expansion chamber is recommended, of which two forms are used, one with the inlet at one end and the outlet at the other, suitable for exhausting through the side of the boat. The other form takes the gas at the center, and exhausts through two small heads, passing through the bottom of the boat. This form is intended for exhausting at the stern. The exhaust head is arranged to allow the exhaust gas to pass into the broken water on each side of the propeller wheel.

The heads are constructed of brass for sea-water use, and of iron, heavily plated, for fresh-water use.

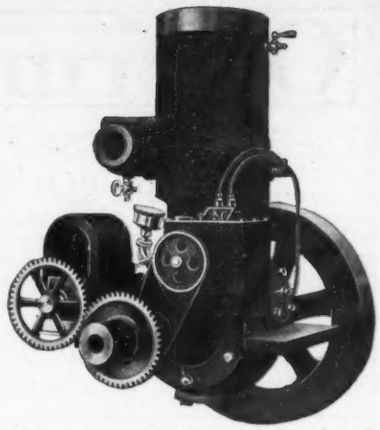
The marine cut-out valve is the production of a lesson learned from the automobile, and is especially useful where multiple cylinders are used. The valve is so arranged that the muffler may be closed and the escape of the exhaust carried through the side of the boat. By this arrangement the operator can detect whether or not all cylinders are working uniformly. They are also used where both muffler and under-water exhaust are attached, swinging from one device to the other, and when the under-water exhaust is used for starting the engine it is desirable to use a cut-out valve. The valve is so arranged that there are no openings through the bottom, and, therefore, no possible leakage of water into the boat.

The valves are manufactured in 1¼-inch, 1½-inch and 2-inch pipe sizes, and larger sizes will be built to order.

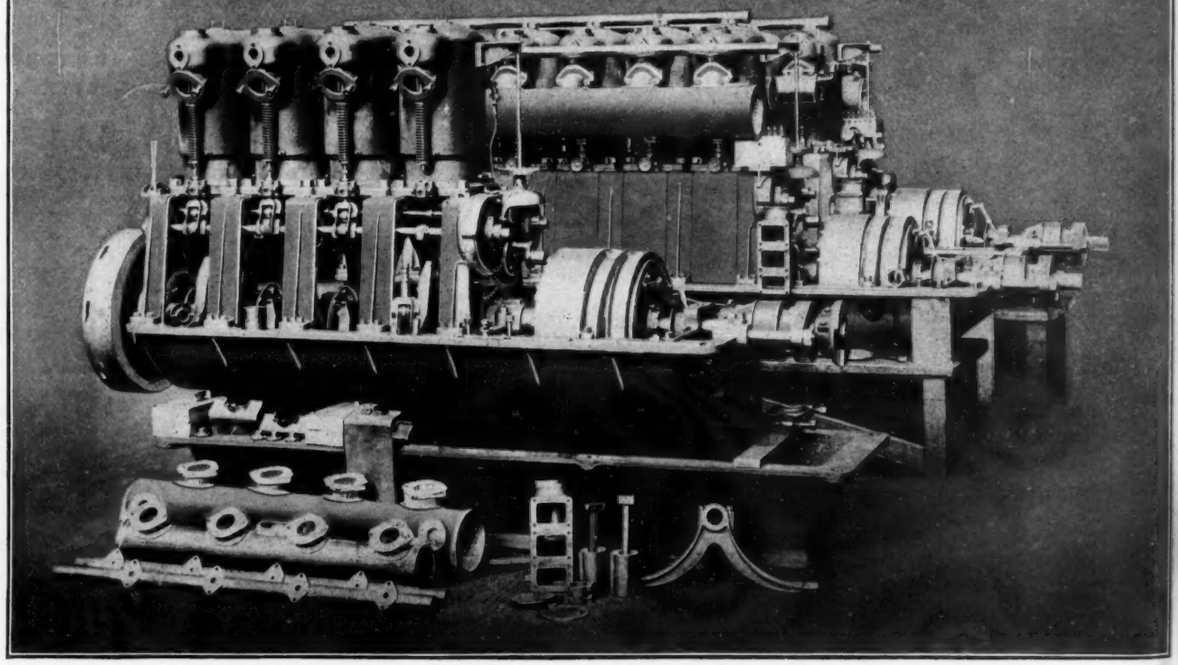
The muffler has been on the market for over six years, and in that time has reached a surprising point of refinement and efficiency, destroying the common belief that a muffler that would silence the noise of the exhaust from a gas engine must necessarily reduce the power of the engine. The Atlantic Maritime Company have a number of letters from engineers stating that with the ejector on, the engine shows a gain varying from 1.3 per cent to 10 per cent over running without a muffler, and in other instances a mile per hour was gained on a measured course by changing from the ordinary form of muffler to the ejector form. This is a saving worth the consideration of motor boat owners.



Mianus Motor with direct-connected, low-tension magneto.



Mianus Motor with both force-feed oiler and low-tension magneto.



View of one four-cylinder and two eight-cylinder 1910 model Jager four-cycle engines. (See page 64.)

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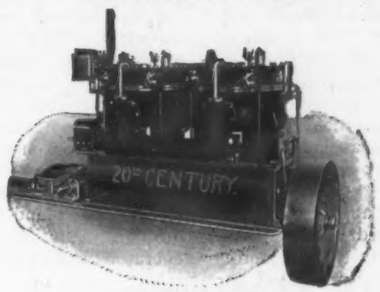

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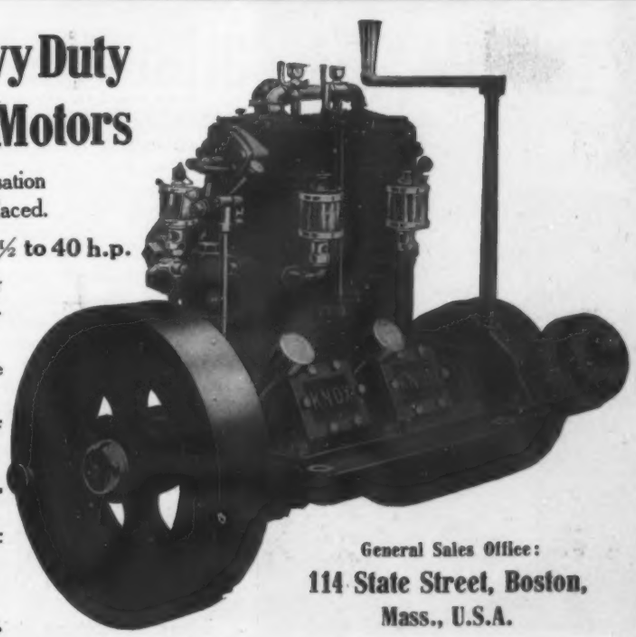

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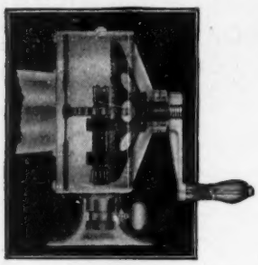
General Sales Office:
114 State Street, Boston, Mass., U.S.A.

A Powerful and Effective Signaling Device

With the sudden activity of the Government inspectors in regard to the enforcement of regulations as to the signal equipment of motor boats, a large number of skippers all over the country were in a decided fix, for with many boats already built it was found inconvenient—to say the least—to install the tanks, piping and compression apparatus of a signaling system using compressed air. For the benefit of these owners the Lovell-McConnell Manufacturing Company, of Newark, N. J., leaped into the breach with their Klaxon, aptly termed "The X-Ray of Sound," which had already obtained an enviable reputation among automobile owners of the better class. By means of a few simple modifications in the details of attachment, the Klaxon was adapted to marine use, either on deck or on the roof of a pilot house.

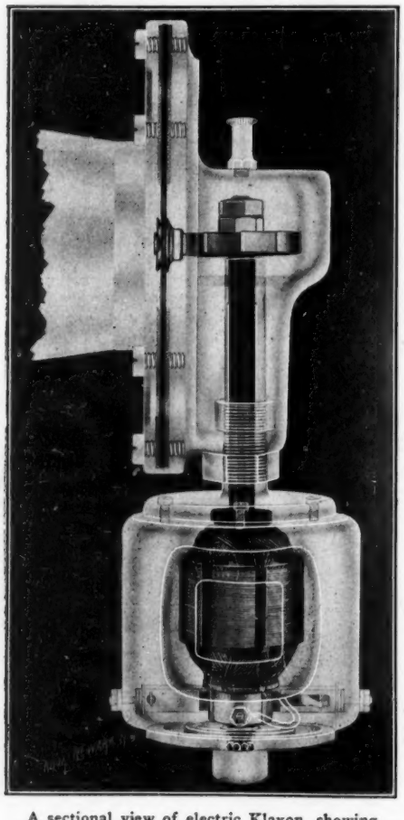


Mechanism of Hand-Type Klaxon.

The convenience of the apparatus was at once manifest. It required no tanks, and could be connected directly to either storage or dry batteries that were used for ignition purposes. But the convenience of installation, which allowed, by the way, any number of signal buttons to be placed throughout such portions of the boat as might be desired, was found to be one of the least of the Klaxon advantages.

As a signal it was discovered to be of great and wonderful effectiveness, enabling the owner of the smallest sized power boat to make as much noise as an ocean-going steam tug, and, moreover, by means of the peculiar shape of the projector, the sound is thrown straight ahead, instead of being scattered in all directions, as is the case with ordinary signals.

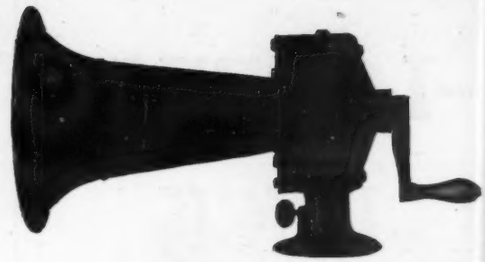
The Klaxon differs absolutely from the average electric signal. It is a mechanically-operated noise machine, and the motor that runs it is actuated by electricity, as will be seen by reference to the sectional cut herewith. An electric motor, which, by the way, is a railroad motor in miniature and powerful enough to run a factory drill press, operates a vertical shaft, on which is keyed a ten-toothed wheel, or rotor. The teeth of this rotor engage with a stud in the center of a 5½-inch steel diaphragm. The motor, when connected to a six-cylinder dry battery or an 8-volt storage battery, revolves 3,000 times per minute, and the ten-toothed wheel, therefore, in operating with the stud, gives to the diaphragm 30,000 double vibrations per minute. The result is a harsh, penetrating roar, which attracts attention everywhere, and will carry through a fog bank to a distance that is simply amazing.



A sectional view of electric Klaxon, showing motor and toothed wheel.

There is nothing delicate in the construction of the Klaxon, and it stands up under the hardest usage. It is absolutely waterproof, and dampness has no effect upon it. In fact, a bucket of water can be thrown into the projector without any damage to the instrument. This is an extremely valuable feature for an instrument that is to be installed on a moderate-sized launch, and which must be relied upon to give service in the roughest kind of weather.

Deck Type, with swivel bracket. Turn thumb screw slightly to swivel Klaxon. Turn thumb screw three times to remove from socket for stowing.



Hand-Type Klaxon.

Early last season the Klaxon people brought out a second model of the instrument, to be operated by hand power, instead of uutilizing an electric motor. The Hand Klaxon is just as satisfactory as its electrically-operated brother, with the exception that it must be operated by hand, and the operator must be in the immediate vicinity of the Klaxon itself.

A Fine Line of Two-Cycle Engines for 1910

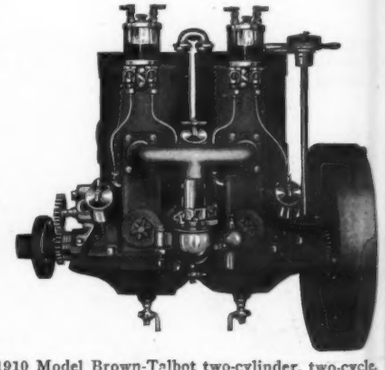
The Brown-Talbot Machinery Company, of 438 Old South Building, Boston, Mass., will have on exhibition this year in space No. 76 a full line of their engines, with the refinements that an added year's experience have shown would be an improvement. The motors that they will show consist of the two-cycle type, in one, two and three cylinders, from 4 to 20 horsepower. The single cylinder motors will run in 4, 7 and 10 horsepower, the double-cylinder in 8, 14 and 20 horsepower, two port and 10-horsepower three port. In the three-cylinder type there will be a 15-horsepower, three-port engine. These engines are fitted with the most up-to-date oiling devices, grease cups, commutator, etc., and are cooled by rotary pump system of water circulation. Only the highest-grade material goes into these motors, and the design and workmanship are of the same high standard that have marked them heretofore.

A 35-Foot Cruiser; Some Open Craft and Power Equipments

In spaces Nos. 18, 19, 20½ and 21 the Truscott Boat Manufacturing Company, of St. Josephs, Mich., will have on exhibition a very attractive selection of boats and engines. The boat portion of the display will consist of four Truscott craft—a 21-foot compromise stern model of the type which has made the Truscott name so well and favorably known—one of the new Truscott 22½-foot runabouts, and a specimen of the new 28-foot boats. The star of the collection will undoubtedly be the new model 35-foot cabin cruiser which the Truscott people are building this year. This boat is 35 feet over-all length by 9 feet beam. Her power will consist of a 21-horsepower, four-cylinder, four-cycle Truscott motor, with dual high-tension magneto ignition.

Particular attention has been paid to the layout of the cabin, with a view to furnishing two comfortable sleeping compartments and extremely generous locker and wardrobe space—a very important consideration in the cruising type of craft. The cockpit is roomy, with a large, lazy-backed athwartship seat at the after end.

She is a one-man controlled boat, and has salt-water equipment throughout, and is one of ten sister boats built for early delivery in 1910. She will undoubtedly attract considerable and favorable attention. In addition to the boats described above the Truscott Company will also present a very complete line of their two and four-cycle motors.



1910 Model Brown-Talbot two-cylinder, two-cycle, 14-H. P. Motor.

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Cornell Portable Cottages

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If you have a fast boat you can still **increase its speed** from ½ to 2 miles an hour, by getting rid of unnecessary weight of bilge water, with the *same power, same hull*, and no trouble, if you will equip with a

HITCHCOCK'S
Automatic Bilge Bailer

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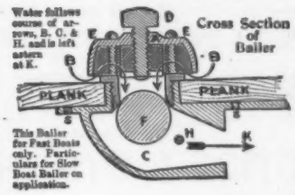
Water follows course of arrows, B. C. & H. and is left astern at K.
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This Bailer for Fast Boats only. Particulars for Slow Boat Bailer on application.

It is **practical, indestructible, effective** and easy to apply, and besides increasing the speed of your boat, it will **keep it dry** and prevent accidents. Acts automatically when boat is under way, and is self-closing when boat slows down or stops. Requires no attention or power and is

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The Automatic Bilge Bailer Co.

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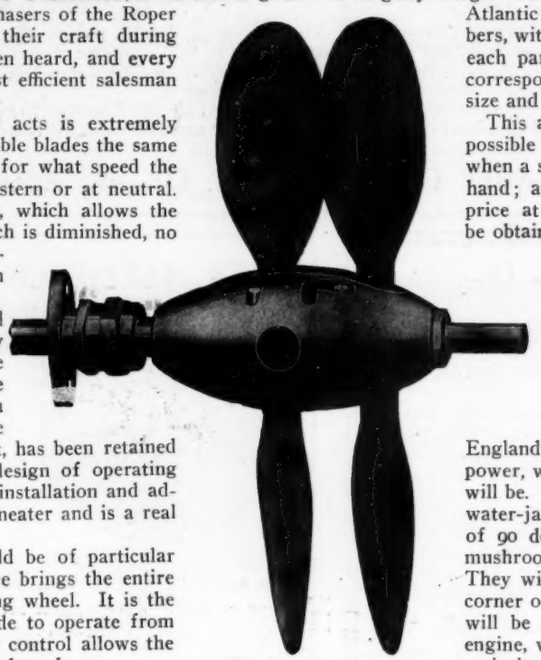
A Practical and Efficient Controlling Propeller

A couple of seasons ago, when C. F. Roper & Company, of Hopedale, Mass., brought out the Roper Safety Propeller, and boldly claimed therefor an absolute control of both speed and direction, irrespective of spark and throttle adjustment, the old shellbacks sat up and took notice, and many were dubious. The Roper people proved their case, and, in spite of having to "buck up" against a lot of prejudice and gain the confidence of the boating public in the efficacy of a device which ran counter to all preconceived ideas, they have shown that the Roper Safety Propeller has not only come to stay but is destined to become a great success. From the several hundred purchasers of the Roper propeller who installed this device in their craft during 1908 and 1909, nothing but praise has been heard, and every Roper propeller put in has proved a most efficient salesman on its own account.

The principle upon which the Roper acts is extremely simple. By means of two sets of adjustable blades the same load is kept upon the engine, no matter for what speed the reversible blades are set, either ahead, astern or at neutral. Unlike the ordinary reversing propeller, which allows the engine to race at neutral or when the pitch is diminished, no adjustment of spark or throttle is necessary after the engine has once been started at the desired speed.

For the year 1910, added strength and greater simplicity have been secured by means of a few changes. What these changes consist of will be shown in space No. 43. The blade form brought out in 1909, and which made these wheels the easiest operated propellers on the market, has been retained in the new models. An entirely new design of operating lever and equipment, however, make the installation and adjustment simpler, and the outfit is much neater and is a real ornament in any boat.

The Roper Safety Bow Control should be of particular interest to motor boat men, as this device brings the entire speed control forward to the bow steering wheel. It is the only positive one-lever speed control made to operate from the bow of the boat. The regular Roper control allows the same perfect control from the stern of the launch.



The Roper Safety Speed-Controlling Propeller, showing the two sets of blades.

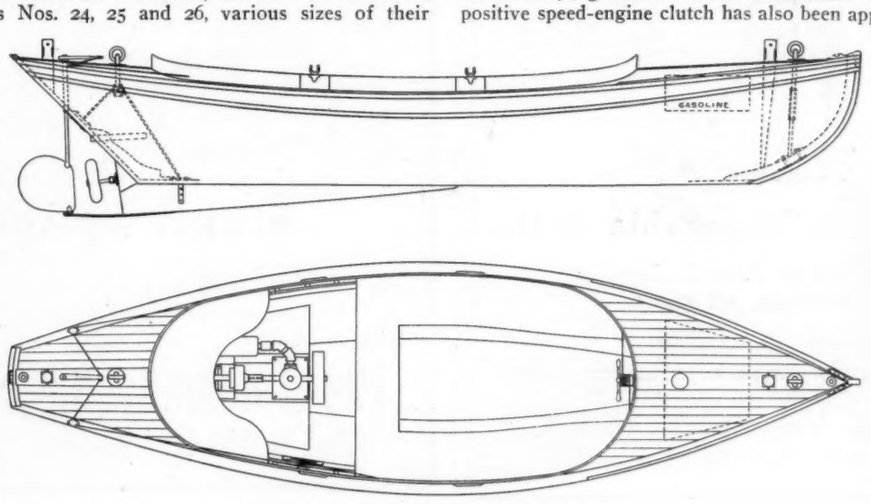
What is probably one of the greatest improvements for 1910 was made when the Roper Company found the metal that they will use in their wheels in the future. It is superior to anything heretofore used or found in propellers. While being able to resist a severe blow without bending it will bend double without breaking.

A novelty in the shape of a propeller protecting coupling is offered now for the first time. This coupling, while in principle similar to some other devices that have appeared on the market in the past, is different in the vital feature. It is adjustable, and can be set on each boat to exactly suit the power of the engine. To properly protect the propeller the coupling must, while being able to carry the full power of the engine, disconnect the wheel from the motor before the blow on a rock or log injures the propeller. By making the coupling adjustable it is possible to set the device so that this result is obtained. Perfect speed control is, as in the past, the feature offered the motor boat man in this device.

How Gurnet Dories are Built

The Atlantic Company, of Amesbury, Mass., builders of the celebrated Gurnet dories, will have on exhibition, in spaces Nos. 24, 25 and 26, various sizes of their smooth-planked dories, equipped with Atlantic two-cycle engines, and, as an illustration of the splendid material and workmanship which is put into an Atlantic boat, there will be seen a 1910 model 24-foot Gurnet dory in white, which will be one of the features of the show.

This boat—just as it was taken from the shops in process of construction—shows one of the regular stock lines of Atlantic boats, and how the craft looks before the deck and deck timbers are put in. To the man who appreciates care in detail and strong and honest construction, this partially completed boat will appeal most strongly, illustrating, as it does, the method by which both sawed and bent frames are used.



Plans of 20-foot, smooth-planked Gurnet Dory.

One of the strong points of an Atlantic boat is the method in which the bilge streak is cut out of sufficiently heavy planking to allow of its being of the same thickness as the other planks, after its being hollowed out, instead of being thinner at the turn of the bilge.

The 1910 Atlantic dories will have the bow rather fuller and less cut away than the previous models, with a view to buoyancy forward and a slightly longer water line, which allows of somewhat better speed. Atlantic boats are a quantity proposition, built in large numbers, with a maximum of careful machine work, which makes each particular part of any boat an exact duplicate of the corresponding part in every other Atlantic boat of the same size and type.

This allows careful fittings to be obtained, at a cost impossible with anything like the same degree of workmanship when a small number of boats are turned out individually by hand; and this is one of the secrets of the very moderate price at which one of these splendid Atlantic boats may be obtained.

Two Additions to the Buffalo Herd

The Buffalo Gasolene Motor Company, of Buffalo. N. Y., will show, in spaces Nos. 68 and 72, an array of engines representative of the regular Buffalo line of twenty-two models of heavy duty and speed types, and also two new models, the V* and Buffalo Auto Marine types, which latter will make their debut at the New England Show. The V* model will be rated at 225 horsepower, which is Buffalo rating and well below what it really will be. The cylinders, which are cast in pairs and are amply water-jacketed, will be ranged four on a side, at an angle of 90 degrees, and will be staggered. Valves will be of mushroom type of large area and on same angle as cylinders. They will all be operated by a single cam shaft in the upper corner of the crank-case. Pistons will be extra long. There will be two carburetors, one at front and one at rear of engine, with an extra throttling device in the middle of the main in-take pipe between them. The crank-shaft is a four-throw, one-piece hammered forging, with pins set at 180 degrees, and is hollowed out to permit of forcing oil through and out on bearing surfaces, a small pump taking care of this part of lubrication. The cylinders and other parts are taken care of by mechanical force-feed lubricators. The circulating water pump is of the rotary type and of large capacity. There is double high-tension ignition. The clutch is a special one, designed for a high-powered speed engine. It is of a combination friction and positive type, which insures absolutely the full transmission of power developed to the wheel.

The other new speed engine—the 4¾ by 5—will be called the Buffalo Auto-Marine Engine. It is placed on the market to fill the demand for a light-weight, high-speed engine of smaller size than the Buffalo four-cylinder 60-horsepower. It is rated at 25 horsepower. This machine is practically the same as the engines the company are building in large quantities for automobile use, with the changes, of course, that are necessary to adapt it for marine work. The Buffalo Company have put on a marine base, and are using their regular ring-oiler system for crank pin lubrication, together with mechanical oiler. Their combination friction and positive speed-engine clutch has also been applied. It is of lightest possible construction commensurate with endurance, which is the first requirement in a Buffalo engine. It promises to be a "hummer" for light, speedy boats. With reverse gear it weighs 550 pounds. The 25-horsepower is rated at the normal speed of 800 revolutions per minute.

A Fast, Moderate Priced Launch

The American Marine Equipment Company, of 27 Haverhill Street, Boston, Mass., has taken the agency for the Elco Express boats for Boston and vicinity, and they will exhibit at the Boston Show one of the

THE H. E. BOUCHER MFG. CO.

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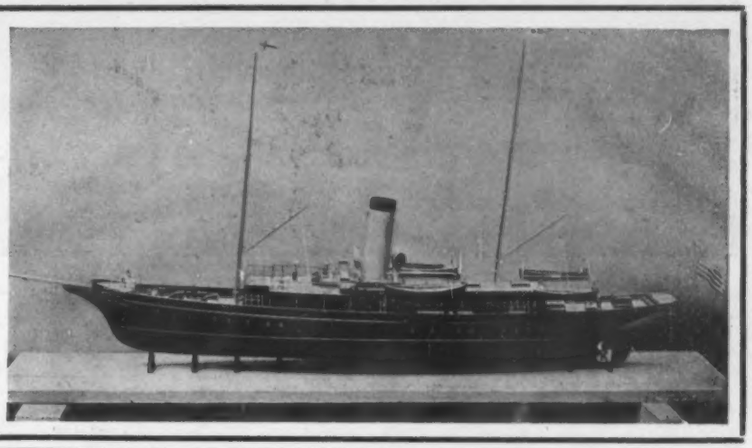

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¶ Send to-day for this free book and study up on the question of how to fit up your motor boat for next season with a complete electric lighting outfit at small expense. The most complete book of the kind ever printed. If you had trouble with oil lamps last season, you surely should read this book. Sit down and write for it to-day.

THE DAYTON ELECTRICAL MFG. CO.
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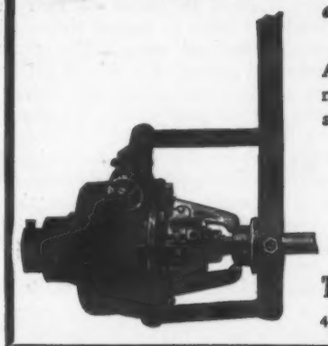
Joe's Improved Reversing Gears and "One Way" Clutches



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Builders of All Kinds of Pleasure Boats. Speed Boats a Specialty.

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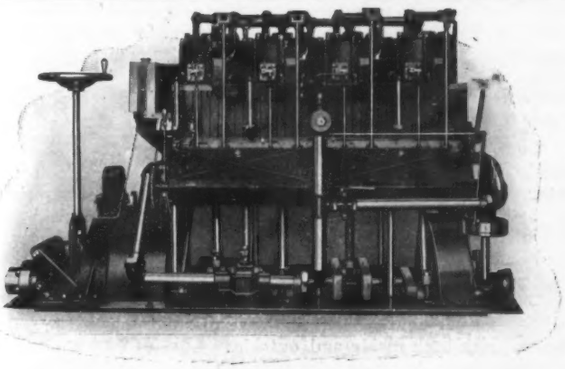
THE R. L. KENYON COMPANY, - LA CROSSE, WIS.



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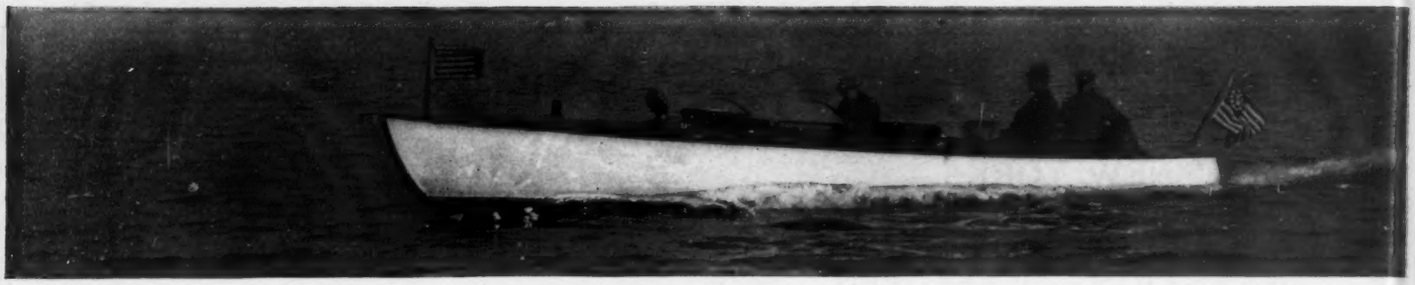


26-foot Elco Express Launch, guaranteed to make 18 miles, with an A. & B. 40-h.p. engine.

26-foot 1910 models, equipped with a four-cylinder 40-horsepower A. & B. gasolene motor.

These boats, which are built by the Elco Company, at Bayonne, N. J., will have a guaranteed speed of 18 miles an hour, and are one of the best high-speed pleasure launches for their size and type that has been offered. The price of the boat will be exceedingly attractive to many who desire a high-grade, high-speed pleasure launch.

The highest-grade material and skilled workmanship are employed in the construction of these boats. The keel is of white oak, with specially bent oak frames, planking of Southern cedar, finished thickness, ½ inch in narrow strakes and uniform seams, secured to frames by copper rivets, all fastenings being of bronze and copper, to withstand salt water. The seams of hull are calked with special cotton, payed and puttied. Outside of planking is finished smooth, painted three coats of white lead paint above waterline, and two coats of anti-fouling green copper paint below waterline. There are watertight bulkheads fore and aft, which assist in floating launch in case of accident. Decks, coaming and interior work are finished in selected Laguna mahogany, steam-bent coamings extending around cockpit. All hardwoods are finished in three coats of best spar varnish. Seats are upholstered in leather, with hair and cork filling. In place of wicker chairs, portable mahogany slatted seats can be provided, and lockers are placed under the permanent cross seats.

The power equipment consists of a 40-horsepower, four-cylinder A. & B. gasolene marine motor, located forward and fully protected by metal-hinging hood, by means of which easy access is had to engine compartment. The motors are of the four-cylinder, four-cycle type. Cylinders are cast in pairs, 5-inch bore by 4¾-inch stroke. The crank case is of aluminum alloy, in one-piece patented construction, all valves on one side. Cam and pump shafts are mounted on D. W. F., with German imported ball bearings and Idler gear. Oiling is of the constant-level splash system, maintained by geared pump. Motor is equipped with magneto. The reverse gear is located in the operator's cockpit; is of the planetary type, with internal expanding band enclosed in an oil-tight case and adjacent to the operator, one lever being provided for ahead, neutral and reverse positions. Control levers, governing throttle and advance spark on engine, are located on control bulkhead, separating operator's cockpit from engine space. The propeller wheel is of special Elco design, with Tobin bronze propeller shaft and bronze bearings. A gasolene tank of 25 gallons capacity is installed under after deck, of heavy copper, with pan underneath draining outboard.

The boats are built and equipped as described above, and include the necessary deck hardware, such as brass chocks and cleats, flag pole sockets and flag poles, ventilator to engine compartment, cushions for permanent cockpit seats (leather covered, hair and cork filled), set of sailing lights, bell, fog horn, six life-preservers to conform to Government regulations, one brass-tipped boat hook, pair of oars, portable bilge pump, a 20-pound galvanized folding anchor and 75 feet of ⅝ manila rope, and four canvas-covered cork-filled fenders.

In future the Elco Company will act as the sole selling agents for the well-known American and British gasolene marine engines, and will furnish the A. & B. motors in two sizes—a four-cylinder, 40-horsepower 5 by 4¾-inch motor, and six-cylinder, 60-horsepower 5 by 4¾-inch motor. These horsepowers are obtained when the motor is turning at 1,000 revolutions. In racing boats the motors are capable of turning even faster and delivering more power.

The four-cylinder, 40-horsepower A. & B. motor is well known, having proved the winner in many important racing events. The Den, equipped with one of these motors, won the 1909 long-distance race to Poughkeepsie and return, 140 miles. In 1908 the Vim, equipped with a 40-horsepower A. & B. motor, won the long-distance race to Poughkeepsie and return and the Inter-State Championship. Other well-known boats equipped with this size A. & B. motor are the Hadajr, Vivian, Haida Papoose, etc. The Haida Papoose won six first prizes in the six events in which she was entered, obtaining three first prizes in her class during the Hudson-Fulton races.

The six-cylinder, 60-horsepower motor is a new type, and the tests already made have shown it to be exceedingly powerful for its weight. This motor is very flexible in operation and runs with a minimum vibration.

The workmanship and material are of the very best that can be obtained, special care being taken in the inspection of the material. The cylinders are cast in pairs and water cooled; cam and pump shafts are mounted on D. W. F., with German imported ball bearings and Idler gear. Crank-case of aluminum alloy, one-piece patented construction, all valves on one side. Oiling is of the constant-level splash system, maintained by geared pump. Each motor is carefully tested before shipping from the factory in a specially equipped testing room, each motor being operated under full load with a hydraulic dynamometer, and actual record of horsepower taken.

The Elco Company are prepared to furnish the A. & B. motors separately to the customer direct or through architects or boat-building firms, and intend to build a line of Elco gasolene express launches, which have proved so popular, equipped with A. & B. motors. They will continue the manufacture of the well-known Elco-Peerless express launches. As has been the policy of the company in the past, they will continue to equip their boats with the highest-grade marine motors, and are prepared to furnish customers Elco motor boats and yachts equipped with any type or make of market engine that may be desired.

A 50-Footer Making Over 30 Miles

George Lawley & Son Corporation, of South Boston, will exhibit, in spaces Nos. 10 and 11, not only the famous Dixie, designed by Clinton H. Crane, and built by them for Commodore Schroeder, but another notable craft, designed by Mr. Fred D. Lawley, and built by them last season for Mr. C. K. Bispham, of Philadelphia—the Savallo.

Savallo is 50 feet over all, 6 feet beam and 18 inches draft, with oak keel and frames and double planked with mahogany. In placing the order for this type of boat Mr. Bispham was desirous of obtaining a speed of 25 miles, and in order to be sure to make it a six-cylinder, 7½ by 7½-motor was installed. With the power developed from this outfit, about 180, the Savallo did better than her owner expected, and a speed of 30.7 miles was obtained over a measured course on Sebago Lake, Me., where she was used during the summer.

The Savallo was considered by her builders as one of the finest pieces of work they had ever turned out, and after a year's usage she does not show any signs whatever of change of form, and her fore and aft lines are as true to-day as the day she was built.

She is laid out with a watertight compartment forward, having a 14-inch manhole; next is the engine room, having separate covers with stacks and engineer's cockpit. Here the engine is started and controlled by the engineer, who acts also as helmsman, and the spark and throttle levers are carried on to the steering wheel. Next is the gasolene tank, with a capacity of 112 gallons, and then another watertight bulkhead. A short cabin, about 6½ feet long, was built as a shelter to protect one from the rain, and is laid out with two transoms, buffet and ice-box. The finish, both inside and out, is of mahogany. She has a very roomy cockpit aft of cabin, about 10 feet long, containing wicker chairs and a comfortable seat at the after end.

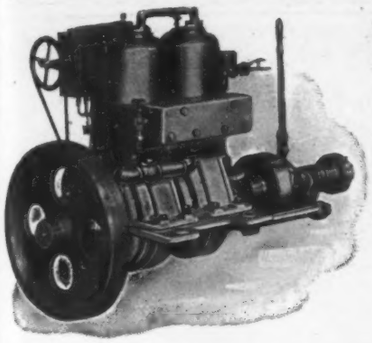
Although used on an inland lake, yet she has excellent sea qualities for use in rough water along the coast.

A Special 17-Footer

In space No. 45 the Boston Engineering Company, of 25 India Wharf, Boston, will show a moderate-priced open launch. This boat is named the "Boston Special," is 17 feet 6 inches in length over all, has 4 feet 5 inches beam, with depths at bow, stern and amidships, respectively, 36 inches, 18 inches and 24 inches. The cockpit is 11 feet 6 inches in length, with a seating capacity for ten people.

Equipped with a 3-horsepower Ferro engine, the builders claim for her a speed of 8 miles per hour. All fittings are of solid polished brass, and she has a paint finish both inside and outside.

The gasolene tank, located under forward deck, is of 8 gallons capacity—sufficient, the builders claim, to drive the engine at full speed for twenty-eight hours without refilling.



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The Engine that wins so many races.

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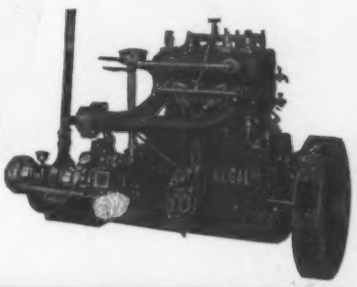
never fail to run and keep in good condition. In every case they always give perfect satisfaction, and the expense for repairing is at a minimum. They are made for high speed and Slow Speed Heavy Duty and in every case "they are built to run, and they do it."

Investigate the Regal Engines before you buy. Write for our Catalogue No. 6



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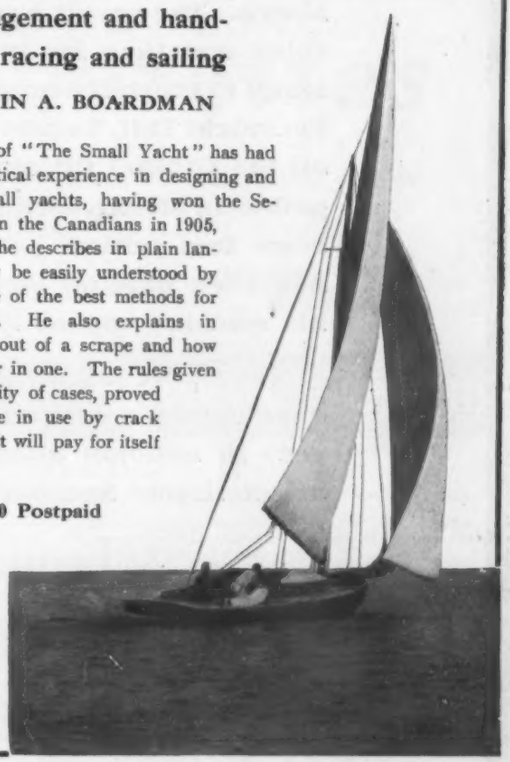
THE author of "The Small Yacht" has had much practical experience in designing and sailing small yachts, having won the Sewanhaka cup from the Canadians in 1905, and in this book he describes in plain language, which may be easily understood by the amateur, some of the best methods for tuning up a boat. He also explains in detail how to get out of a scrape and how to put a competitor in one. The rules given have, in the majority of cases, proved successful, and are in use by crack amateur sailors. It will pay for itself in your next race.



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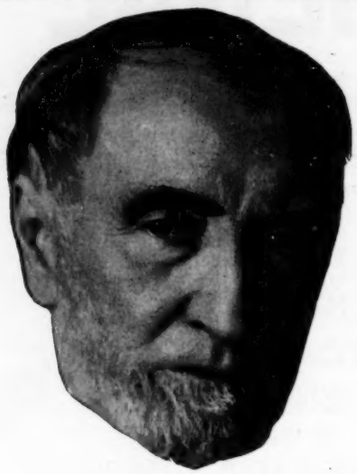

"THE END OF CANNONISM"

History has been making fast since Success Magazine's remarkable fight last March. The revolt against the House machine was then far from strong. The attempt to crush it brought Cannon, Aldrich, President Taft, Tammany Hall, and nearly all the Cabinet Officers and Senators together in an extraordinary alliance. Ever since that critical period the movement has been gaining strength. Cannon and his machine appear to be doomed.

The whole inside story of these recent developments, with a forecast of the progress in national affairs possible under an intelligent Speaker, will appear in the

January

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Always hold their shape.
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In boxes of 100, 15c.; 2 boxes 25c.;
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Put a Neverout searchlight on your boat, back it with a Neverout Safety Gas Producer and you will be able to pick out floating objects at the greatest distance. For the ***Neverout Gas Producer*** instantly supplies ample quantity of cool acetylene gas, assuring strong, pure-white light.

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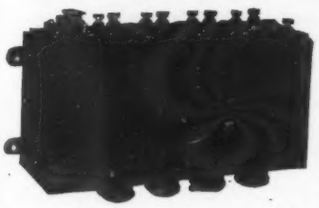

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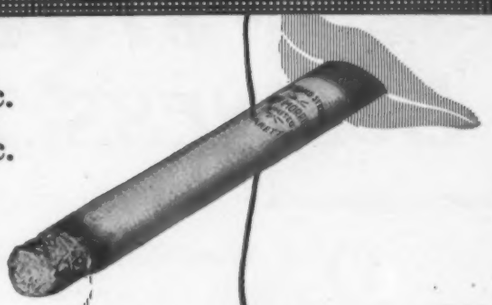

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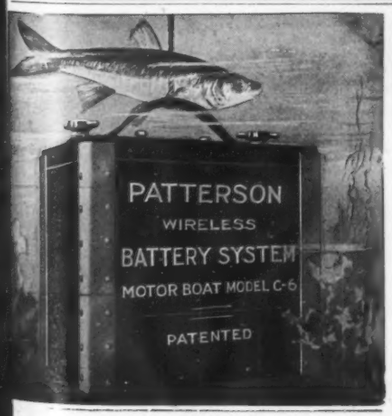

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You'd hardly ask your Battery Set to work like this—but if you'll use the "Patterson System" when the emergency requires, it will do it.

This System revolutionizes the old methods of Battery Sets—its fundamental principle is a Screw Top Cell Unit, screwing into a solid hard rubber plate, which plate forms a waterproof cover for the entire outfit; batteries are suspended from the plate. There can be **no loosening connections—no bad contacts—no troubles from dampness and corrosion!**

A Wireless Battery Holder will not only maintain a Set of Batteries at **HIGHER AMPERAGE,** but will in a year or so **save the Motor Boat owner its entire cost from the greatly increased life each Set of Cells will give,** because of the Holder's scientific design for their protection and economical maintenance.

A WIRELESS DRY BATTERY HOLDER will last a lifetime.

Emergency Clips are provided so old style "Binding Post" Cells can be used any time "Screw Top" Cells are not at hand. Send for Bulletin 37.

STANLEY & PATTERSON, 23 Murray St., New York

NOTE.—*Battery Cells to fit* **"PATTERSON" WIRELESS DRY BATTERY HOLDERS** *are now regularly manufactured by all prominent makers of Dry Cell Batteries throughout the country. When ordering Batteries simply specify that the* **"PATTERSON" SCREW TOP CELL** *is required in place of the old Binding Post Type of Cell.*

Some Recent Sales and Charters

The following sales of yachts have been effected through the office of Henry J. Gielow of this city:

Motor yacht Placebo, for Max Phillips, 401 Broadway, New York, to Vernon C. Codd, for use in Chesapeake Bay and vicinity; hunting cabin cruiser Tambour, Irving D. Rhodes, Waterford, N. Y., to Griswold Dennison, for use in Great South Bay; raised-deck cruiser Tam o' Shanter, R. Henderson and D. C. Preacher, to the Narrows Island Club, Poplar Branch, N. C.; raised-deck cruiser Irene, Alfred Mestre, 52 Broadway, New York, to Bayard L. Foulke, Flushing; auxiliary sloop yacht Alana, H. C. Perry to H. F. Dawes, for cruising on Long Island Sound; yawl Anna, Frederick Schuchardt, Nyack, N. Y., to Isaac N. Maynard, for use near Clayton, N. Y.; sloop yacht Squaw, W. E. & E. K. Valentine, 570 Mason Street, Brooklyn, to Vinal S. Terry; knockabout Mustang, B. Franklin, Jr., Providence, R. I., for shipment to the British West Indies. Mustang will be entered in a regatta, which will take place at Grenada; auxiliary catboat Annie Belle, H. E. Wimpheimer, of New York, to N. G. Bennett, New York.

The Hollis Burgess Yacht Agency, Boston, Mass., has sold the Herreshoff Bar Harbor one-design class 31-foot sloop Orissa, owned by Mr. George Atkinson, Jr., 830 Exchange Building, of Boston, to a prominent Boston yachtsman. Also the 25-foot waterline cruising sloop Constance II, owned by Mr. John P. Thomas, of Cambridge, Mass., to Mr. C. Walter Vialle, of Concord, Mass., a prominent member of the Boston Yacht Club.

Through the agency of William Gardner, the 103-foot steam yacht Jessie, sold for A. E. Austin, New York Yacht Club, to Mr. Edward Y. Weber, of Stamford, Conn. The yacht will still remain enrolled in the New York Yacht Club fleet, and change of name is contemplated to Mareva.

British Motor Boat Club Challenges for the Harmsworth Trophy

We are in receipt of the following details from the British Motorboat Club in regard to the challenge recently issued by that organization for a race for the Harmsworth Trophy next summer.

The challenge by the British Motorboat Club for the British International Cup (better known as the Harmsworth Cup) will centre a lot of interest in motor boating during next year apart from that always displayed in the regattas of the clubs and at Monaco. The boat which will represent the club will be constructed by the Orleans Motor Co. of Twickenham, and will be of 40 feet over-all length, fitted with Orleans engines specially designed for the purpose.

There was no race for the cup last year, though early in the season a challenge was issued. In August, 1907, Dixie I won the cup from this country, the race being held in Southampton Water.

In 1908, The Duke of Westminster's Wolseley Siddeley and Lord Howard de Walden's Daimler II went to America and raced for the cup, but Dixie II, which had been built to defend it, was too fast for either of them and retained the cup for America.

Two New One-Design Classes for The Sound

Messrs. Cox & Stevens have lately been commissioned to have built from their designs a one-design class, to be known as the Noroton one-design class, and also have been authorized by the Stamford Yach Club to have built for them a one-design class to be called the Stamford one-design class.

These two classes of boats are to be practically identical in dimensions, which are approximately as follows:

Length over all, 22 feet 0 inches; length waterline, 13 feet 9 inches; beam, 6 feet 0 inches; draught, 3 feet 9 inches. Five of each class have already been ordered and are being built by the Milton Point Boat Works, and it is expected that at least as many more will be built in each class during the winter. These boats are to be raced by rival organizations and will meet frequently durnig the summer. This is another indication of the fact that practically all interest in sailing yachts at the present time is centered in small one-design classes.

These particular boats were gotten up for the purpose of securing a good, safe, able craft, with a fair turn of speed and as comfortable as a boat of the given dimensions can be. They are being built in the most approved manner, having outside lead ballast, all fastenings to be of copper or composition, and a finish of the best throughout. They will all be in commission by Decoration Day, the work being already well advanced.

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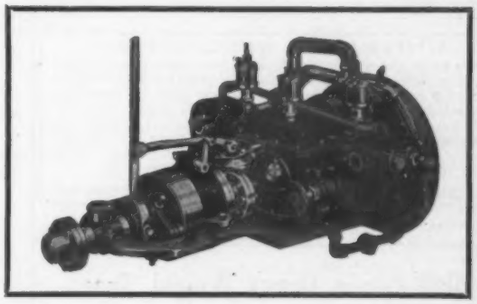

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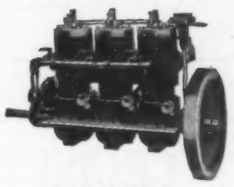

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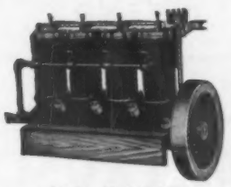

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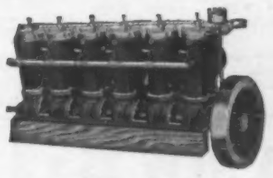

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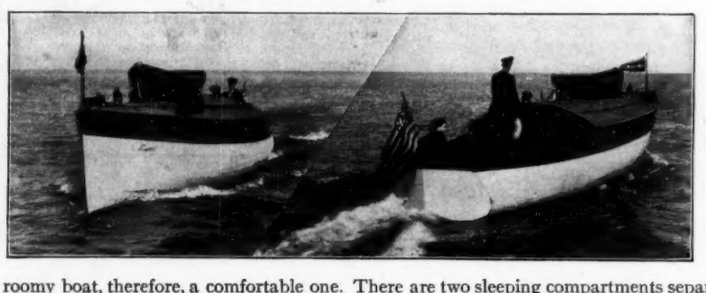

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Palm Beach Races

Entry blanks for the sixth annual regatta of the Palm Beach Power Boat Association, which will be held on Lake Worth, Palm Beach, Fla., March 15-18, 1910, are now out.

Theodore D. Wells, chairman of the regatta committee, 32 Broadway, believes that the list of events for this winter will attract a greater variety of power boats than has ever been seen before on the famous Lake Worth motor boat course at Palm Beach, Fla.

Several boats are now being built for the regatta, and it is said that at least twenty-five entries will be made from Florida alone. Detroit and Chicago motor boat owners are much interested in the Palm Beach affair and promise entries.

Entry blanks and booklet giving the various rules and events can be secured from Theodore D. Wells, 32 Broadway, New York, and from Leland Sterry, Palm Beach, Fla.

The various classifications are as follows:

Class A, all boats, A. P. B. A. rating rule. Class B, 32 feet and under L. W. L. Class C, 32 feet and over L. W. L. Class BC, all boats, L. W. L. Class D, 17 miles speed and under. Class E, 17 miles speed and over. Class DE, all boats, speed.

The prizes are valuable and handsome, and in addition there will be a $2,500 cash prize, called the Palm Beach Grand Prize.

The Season of 1909 on Narragansett Bay

(Continued from page 33.)

Hugi. A third and a fourth place in the races sailed while Bat was absent lowered Hugi's standing, while some idea of Bat's consistency during the week can be gathered from the fact that she secured five seconds and one third, while Hugi was up and down the line with four firsts, three thirds and a fourth.

Tema proved a remarkable boat in light airs, and more especially reaching. She was at times very poorly sailed, and was in several mix-ups, which cost her a great deal of percentage. Of the others, Mustang captured two firsts in light airs, while Bonito showed good speed in the same conditions and was well sailed by her young owner, B. C. Hirst. Grayling did well in heavy going, and Coyote and Moslem showed considerable speed in the few races which they sailed, the first-named securing one first.

The catboats furnished better sport than for a number of years. The announcement of two boats to represent Narragansett Bay in the series at Barnegat brought out Ina, Bother, Netor, Trinket and Ingomar. During the early season all the races were taken in the count to select the team, and as Ina and Bother were victorious in all the races, they were chosen. Later in the year both Ina and Ingomar dropped out, but the other boats raced consistently, Bother winning usually in easy-going and Netor or Trinket in heavier winds.

Ina was captained by W. J. Rooks, probably the peer of any of the local helmsmen for all-around ability. He was ably assisted by the owner, E. A. Kettledy, and a picked crew, while on Bother the two veteran catboat men, Jim Foster and John Peck, were at the stick and sheet respectively, with the owner, Gilbreth Brown, and two other experienced men as crew. The boats raced against two picked craft at Barnegat, and secured first and second honors, Ina capturing the first prize cup and gold medals for her crew while Bother took the second prize and silver medals. The races were characterized by the very best of good fellowship and good sportsmanship on both sides, and the entertainment provided by the Island Heights Yacht Club, and the genial Commodore McAvoy, was such that the Rhode Island boys were loth to leave.

The success of the series has led to a continuation of the arrangement, and plans are already under way for a perpetual challenge cup, and a conference between representatives from Narragansett Bay, Barnegat Bay, Buzzard's Bay, Great South and Massachusetts Bays for a simple form of rating under which these contests are to be held. Next year will see the series in Narragansett Bay, and it is expected that a team will be present from each of the above-named localities.

The other two racing classes are the handicappers and the dories. In the first-named, Alice W., Beauchess, Mystery and Obstacle did most of the racing, and the system has been worked out to such perfection that the prizes were pretty evenly divided, although Alice W., by consistent racing, secured the highest percentage. Also and "23" secured most of the prizes for dories.

With the season of 1909 hardly over, plans are already maturing for the coming year. In Class P there will be at least three new boats, which two will be built to beat May Queen. In the knockabout class a round dozen of new ones is not unlikely, with the probability of a contest from a local yard. The success of Hugi has greatly stimulated the interest in this sterling class of boats, and men not previously interested in racing are talking of securing fast ones.

A. Cary Smith—An Autobiography

(Continued from page 23.)

Library. The Richard Peck was followed by the City of Lowell, that made a speed of 22.2 miles over a 9-mile course under the control of Professor Denton, of Stevens Institute. This speed was made with a normal load of freight, with only 5 per cent. of slip to the wheel, a record that excited the risibility of the conventional builders and was doubted. Then followed the Chester W. Chapin, designed on the lines of the Richard Peck, with a 10-foot piece added just over the center of buoyancy. The steam pilot boat, New York, is another notable vessel. She has been on the station for many years; never kicks her wheel out of water; never puts her head under, and meets all wants of that exacting body of men, the Sandy Hook pilots—exacting because they know what they want, and must have it to ply their arduous profession.

A few words may not be out of place about the Meteor. The attaché at Washington showed the designer a letter written by his Imperial Master, not to be touched by profane hands. The letter was translated, and the word "cruising type" was underscored twice. This led to a misunderstanding. In this country a cruiser is only raced in her own class, and Meteor was loaded with teak skylights, like a ship, and was also handled by men innocent of the art of schooner sailing.

But her august owner had other views than racing, and his plans have worked out well. Encouragement of native talent has had its effect in *sonderklasse* racing, and the new Germania, of whose performance we will get an idea next season.

And now a few words about Vergemere. Before going on her trip abroad she was tried at sea when loaded with stores. The report made was that she was too stiff, and that it required a strong breeze to bring her down to the dead lights. Eleven tons of lead were taken out of her, and a second trial was made. The report made was that she was perfect, yielded to her sail, rolled easily and proved to be a perfect sea boat. One fault she had. When "hove to," she would work to windward. This is a proof that sea boats should not draw too much water. Also that boats must not be too stiff at small angles of heel.

The Yampa has proved a noted performer at sea, and has run from St. Michaels to Cadiz, 595 knots, in 50 hours. This was with wind free and strong. It is related of her that one man on board could sit on the wheel-box and steer her in any weather.

The Iroquois, while hove to during the great blizzard under main trysail, was watched closely, and when she swung off, the trysail sheet was slacked and the helm put up. She turned on her heel and ran before the sea like a bird, making 11 knots under both trysails and forestaysail. Lasca was designed for Mr. John E. Brooks, and though the model called forth adverse criticism, she proved to be one of the finest sea boats in the country and would handle under any sail. She was the joy of all mates and captains. In one year she sailed 15,000 miles; has been owned abroad, and is yet called a good boat, and one man can steer her at any time. The Genesee went to Naples on a trial trip; she was too deep in the water; had very heavy weather, and had her bulwarks bent in. But when she returned, 10 tons of lead were taken out and she became only second to Lasca as a sea boat.

Having read that Andrew Carnegie surrounded himself with men smarter than he was, the idea was carried into effect in the case of this designer. In 1903 Mr. Theodore E. Ferris became a partner. Mr. Ferris had worked in the office when much younger and had had a large boat and ship-yard experience, was with the Electric Works at Bayonne as designer, and later was chief constructor at Shooter's Island. Since the association all kinds of work has been done. The Mallory Steamship Brazos was superintended in every detail, and when completed Mr. Ferris was put in charge and she made a record run to Galveston.

While he was chief constructor, Mr. Ferris built the Meteor, Atlantic, Thistle, Resolute, Elmina I, Muriel, and Shenandoah, his own design, and many vessels of all types, including the largest barges ever built in New York for the Standard Oil Company.

The firm is now engaged on steam lighters, large motor boats and small ones, and yachts of all kinds.

When the artist began to design boats, two factions were evolved. The art fraternity said that he knew nothing about art but was a great designer; while the builders held the belief, and voiced it, that he was a great artist but knew nothing about boats. The great Thackeray has remarked, "Our friends paint us, and our enemies! Both are likenesses."

The subject of this sketch has seen his pictures hung in the place where those of great painters have hung. And he has seen his boats continue on their journey when others became bashful and wanted to go the other way. He has seen Mischief chosen for the defense of the America's Cup merely because he profited by the experiments previously mentioned.

His ears are like those of a mule and very flexible, turning every way to hear and learn. After 50 years' experience with boats, he finds himself like Sir Isaac Newton—that he has picked up a few shells on the shore of the great ocean of summer drinks. There are many things about boats that he doesn't know, but his opinion is, that there are trained naval architects that don't know much about boats, and there are men who don't know much about naval architecture and yet have made good boats. Now, the remedy for this state of things is, to blend the two kinds. Perhaps that man that produced seedless oranges and spineless cacti could give valuable hints on this phase of the case.

Milwaukee Yacht Club

The Milwaukee Yacht Club has closed a prosperous season with the election of officers to serve during 1910. The Milwaukee club is a promising organization, which, under proper effort, can be made one of the leading yacht clubs of the Great Lakes. It has a beautifully located club house with a fine anchorage immediately in front of it, in water that is never too rough for the passing of small boats between anchored yachts and the shore. Chicago may have more wealth at its back, and consequently a larger fleet; but a small club full of "snap and go" can make itself felt, if it possesses fast vessels in the several classes to represent it in the regattas.

Colonial Yacht Club Election

The annual election of the Colonial Yacht Club was held recently at the club house on the Hudson River and 138th Street, the following officers being elected for the coming year: Commodore, Carlton S. Welch; vice-commodore, Charles M. Hilliker; rear commodore, M. H. Dyckman; recording secretary, Franklin P. Pratt; financial secretary, Charles H. Stone; treasurer, Frederick Gerst, and board of directors, W. Gerald Philippeau, Charles P. Holland, George J. Vestner, Richard E. Weldon, Frederick Schmidt and Frank Totten.

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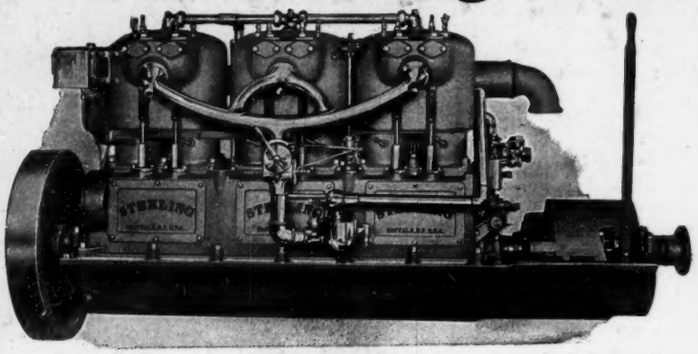

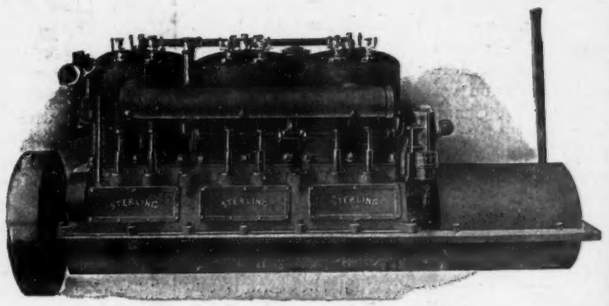

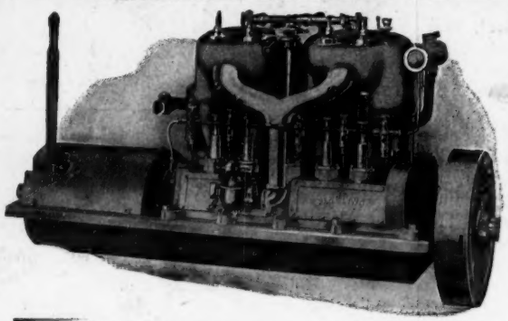

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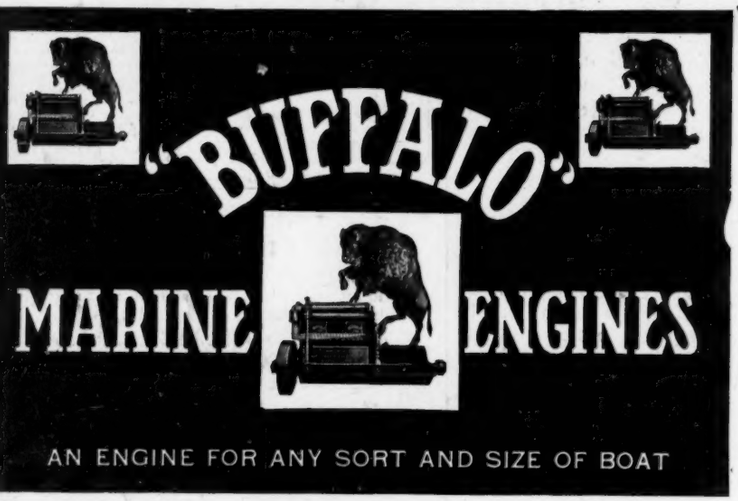

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